# PHOTO ERA THE AMERICAN JOURNAL OF PHOTOGRAPHY

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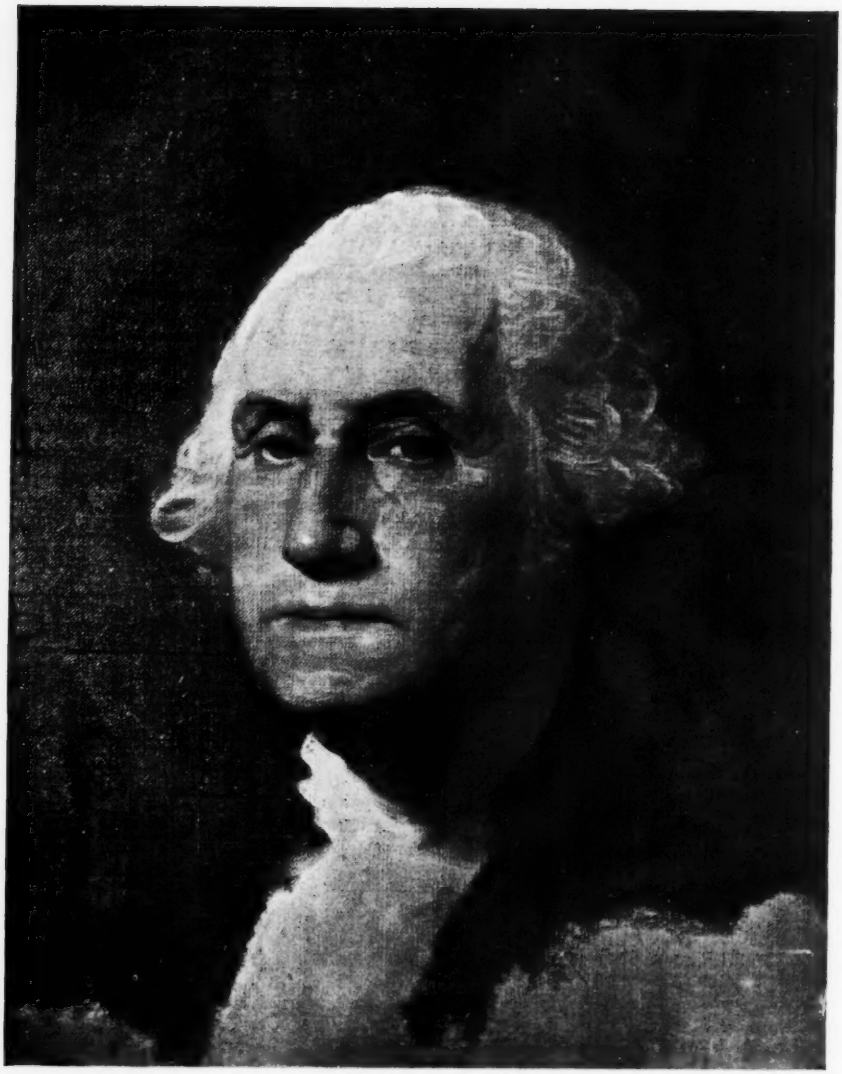


COPY OF GILBERT STUART'S WASHINGTON
MADE FIFTY-THREE YEARS AGO
JOSIAH JOHNSON HAWES

# PHOTO ERA

The American Journal of Photography

VOL. XVI FEBRUARY, 1906 No. 2

## A NEW ENGLAND PHOTOGRAPHER

### RANDOM PHOTOGRAPHS BY CHARLES A. HOYLE OF BOSTON

THOMAS HARRISON CUMMINGS

IT has often been remarked by those who follow the Photographic Exhibits of this country that our portrait studies are often lacking in distinction. The lighting and posing may be good and the general technique excellent; the subjects themselves may be more or less remarkable; but as they appear in the finished photographs, they are somehow lacking in personality. They are not photographs of real personages. The photographer has evidently failed to render that which is distinctive in his subject. Of course, if the subject has no distinction that would appeal to a cultivated intellect, but only that which interests and amuses his friends and acquaintances, then the picture has no right to be hung as a sample of good portraiture in an exhibition. But there are few subjects who will not show in some way by outline of form, in movement or repose, some distinction of mind or body which might be of interest to our common humanity. For instance, in Sargent's paintings the most striking quality is always that of distinction. In Millet's peasant studies, though their bodies are bent and bowed with toil, they are exceedingly dignified and noble withal. Whistler's portrait of his "Mother" and his "Girl in White" are filled with imposing distinction. Such pictures mark the difference between the work of the painter, who is an artist, and the work of the man, who is only a skilled workman.

In most French and German portrait photographs there is a distinction that is quite marked and one that is easy to understand. They seem to catch the impression of distinction in the personality of their subjects which the American photographer often fails to render. And though they may err in their conceptions of the character of their subjects, their pictures are never commonplace, but are always interesting, to say the least. These thoughts have been suggested by an examination of the pictures of Charles A. Hoyle of Boston, one of the most promising of the younger generation of photographers of this city. His pictures are fine portrait studies of excellent quality. They represent a high general average of American professional work. Yet, if any criticism might be offered, it is that like most American photographs they lack the one touch of individuality and distinction that the French or German artist

might give them, if he understood American life as the American photographer should understand it. And this criticism is not offered in disparagement of American photography, but is only a plea for a National School of Photography.

Within a period of six years, quietly and without any ostentation, Mr. Hoyle has been steadily climbing the ladder of success in picture making. Among the conditions laid down for success, in the Arts and Crafts manual, is a natural aptitude, thorough technical training, and a just appreciation of standards. The unit of labor should be an intelligent man, whose ability is used as a whole, and not subdivided for commercial purposes. Of course, it goes without saying, that the motives of the true artist should be the love of good and beautiful work as applied to useful service and the need of making an adequate livelihood. In no case, can it be primarily the love of gain. The results aimed at, are the training of a true craftsman, the developing of industry and character in connection with artistic work, and the raising of standards of beauty in objects of use. In all these facts we believe that Mr. Hoyle has made good. He was educated at the Hebron Academy, Hebron, Me., and his photographic bent was so marked, even then, that he spent most of his time during his vacation days in the Stanley Studio at Lewiston, Me., and at Old Orchard Beach. Later on, he came to Boston and worked several years with Charles Wesley Hearn, the present executive head of the National Photographers' Association of America. Meanwhile, his thirst for art knowledge was so great and his desire to excel in his chosen profession so insistent that he studied at the Cowles Art School and at the Boston Evening Drawing School. Here, his knowledge of composition, light, and perspective was increased, the relative value of light and shade was learned, and a beginning was made for a broad and liberal art education that has since served him in good stead. About this time, 1897, an opportunity came to purchase the Frees Studio at 288 Boylston Street, Boston, and the young photographer was not slow to improve this opportunity. In conjunction with Mrs. Hoyle, who was a former art student, he opened this studio and carried it on successfully for five years. Some of the best people in the city were soon numbered among his clients. In 1902 the present studio at 368 Boylston Street was erected. The winning personality and gentle insistence of Mrs. Hoyle that the standard of the Hoyle Studio should be only of the highest and best, have probably added more to their joint success than any other single influence. The difference between true works of art in photography and "mere art photographs" is, that the latter are made to sell and appeal to the love of display in the buyer, while the former are made for use and its appropriate beauty, — and appeal to love of use and beauty in the buyer. Good workmanship in photographs is essential always, but the right motive is what gives to good workmanship its life and interest. Hence these pictures are not only interesting to look at, but beautiful as well; because they are inspired by the right motive, — a love of the beautiful and the true. In seeking to give expression to this love in his pictures, Mr. Hoyle is happy in the highest sense, because he is conscious of making progress. Day by day the

spirit grows strong through the exercise of its faculties, just as a muscle grows strong through frequent use. Expression is necessary to life and growth.

To express one's self rightly, whether it be in music, poetry, or the subtlety of beautiful lines in pictures, is to live and expand. Moreover, this effort on the part of the artist to secure right expression in his pictures involves the very marrow of his heart and character, because it means the habit of always doing his best. "The man who does everything to a finish has a feeling of serenity, is not easily thrown off his balance, and has nothing to fear," says the editor of *Success*. He can look the world in the face because he feels conscious that he has not put shoddy into anything, that he has had nothing to do with shams, and that he has always done his level best. This sense of efficiency, of being master of one's craft, of being equal to any emergency; the consciousness of possessing the ability to do with superiority whatever one undertakes, will give soul satisfaction which a half-hearted, slipshod worker never knows. When a man feels throbbing within him the power to do what he undertakes as well as it possibly can be done, and all of his faculties say "Amen" to what he is doing, and give their unqualified approval to his efforts — this is happiness.

It is with this consciousness that Mr. Hoyle has won his great success in picture making. He has the habit, well defined, of always trying to do his best. In these dainty photographs there is a thoroughness of treatment, a lightness of touch, and a noticeable freedom from the conventional ways of doing things. One feels that the photographer is more interested in life perhaps than in art or photography, and he is so full of his subject that his pictures radiate it.

There is not a dull or uninteresting picture in his whole collection, and each one reflects the artist's personality. After all, it is the personal element more than anything else which has given photography its recognition as a fine art. Says J. C. Van Dyke, "A picture is but an autobiographical statement; it is the man and not the facts that may awaken our admiration; for, unless we feel his presence and know his genius, the picture is nothing but a collection of incidents. It is not the work but the worker, not the paint but the painter," not the photograph but the photographer.

It is interesting to note that Mr. Hoyle is a financial as well as an artistic success. Within three years he has erected a second studio at Magnolia, Mass., one of the most exclusive summer resorts on the North Shore. Here his success has been equally marked, and he counts among his friends and patrons some of the best people from the West and South. With all his good fortune and success, he has kept a very level head. He is still modest and unassuming, with a strong aversion to notoriety of any sort, his only ambition being to reach still loftier ideals in his pictures. "I buy the pictures of Mauve," remarked a clergyman in Paris, "because he puts into them what I try to get into my sermons, simplicity, suggestiveness, and logical sequence." Perhaps the public reasons the same way, when it buys the Hoyle pictures.

CHARLES A. HOYLE
LOVE ME, LOVE MY DOG

CHARLES A. HOYLE
CHILD STUDY

CHARLES A. HOYLE
CURIOSITY

CHARLES A. HOYLE
PORTRAIT OF MR S

CHARLES A. HOYLE
MOTHER AND CHILD

HARLES A. HOYLE
MOTHER AND CHILD

CHARLES A. HOYLE
CHILD STUDY

CHARLES A. HOYLE
MRS. H. AND CHILD

CHARLES A. HOYLE
AN ABSORBING STORY

N. L. STEBBINS OLD IRONSIDES

## PRESERVE OLD IRONSIDES

ON January 20 President Roosevelt, in the presence of a distinguished company of public men, received the large petition of the people of Massachusetts protesting against the destruction of the frigate "Constitution" as proposed by Secretary Bonaparte of the Navy Department.

The words of the petition were painted in water colors on a drum head, beneath a remarkable oil painting, by Eric Pape of Boston, representing the "Constitution" as she is supposed to have appeared in her famous encounter with the English frigate "Guerrière." The signatures, which included those of almost every Massachusetts man of note, as well as the descendants of the officers and crew of the old frigate, occupy a length of 170 feet, and if the names had been written in a single column, the length would have exceeded the height of the Washington Monument.

After considerable discussion in official circles it seems to be agreed that the old fighting vessel shall be restored as nearly as possible to its original condition, and the PHOTO ERA wishes to join the patriotic citizens of Massachusetts in urging that this national and State relic of Revolutionary times be preserved at Boston near the wharf from which she started for the wars.

# HOW TO PHOTOGRAPH THE MOON RIGHTLY

HAROLD HUTCHINSON

PHOTOGRAPHY, be it called an art or a science, still possesses many problems to sustain the interest of both amateur and professional in the keen pursuit of their solution. The whole subject is but young. Among the most enjoyable branches, however, and perhaps because they are among the more difficult in which to achieve success, are telephotography and night photography; with both of these we shall have some concern herein.

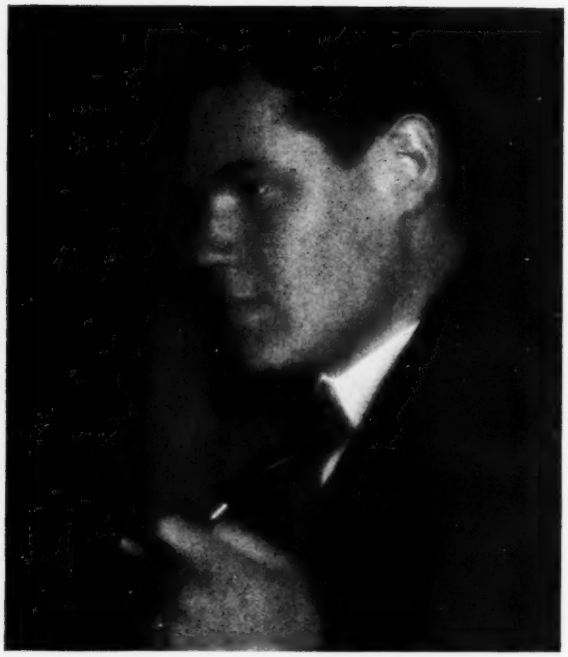
Telephotography is not, as might be supposed, the taking of astronomical photographs by means of a telescope, nor shall we deal with astronomical photography except in the most amateurish fashion, but is usually the taking of objects more or less distant on a much larger scale than is possible with the photographic lenses commonly in use. This requires the employment of a special lens system known as the telephotographic lens. This instrument was foreshadowed some seventy years ago when Peter Barlow, in 1834, in a communication to the Royal Society, remarked upon certain advantages that might be found in the use of negative lenses, in telescopes, in combination with the ordinary positive glasses. The principle was made use of astronomically at rare intervals until, some quarter of a century ago, mention was made of the possibility of applying the Galilean telescope, or opera glass, to the production of large terrestrial images. In 1891 patents by various well-known lens makers were applied for almost simultaneously, and the telephoto became an assured fact. Briefly, it is a system in which the application of a negative lens as the posterior element of a combination in which the anterior element is a high grade positive results in the production of enlarged images. That is to say, the system will produce images much larger than would the positive alone. Moreover, the size of these larger images may be varied by a mechanical increase or diminution of the distance between the positive and negative lenses in combination. As an offset to this convenience in usage are the facts that the time of exposure necessary to impress an image on the photographic plate must be greatly lengthened when the telephoto is used, that the camera must be very firmly erected, etc. Granted time enough, however, and certain other conditions, and the telephoto proves a most valuable instrument. It should not be inferred from what is printed above that telephoto exposures always consume a considerable time—indeed they last only for a fraction of a second under the best conditions—but that the exposures are very long compared to those needed for an ordinary lens under like conditions of object and light. Finally, no mention is made above of the fact that the telephoto is extremely useful at times for the photography of comparatively near objects, as such use has no immediate bearing for us.

By night photography, herein, is not meant the taking of photographs by artificial light, such as gas, flash-light, or electricity, for such means are often an aid to the enthusiast during the daylight hours, but rather the impression

of the plate mainly or wholly by the natural light of the moon or stars. The word mainly is advisedly used, in that many street scenes and other pictures taken at night necessarily include and are partially made by artificial light. It is perfectly possible, however, and often easier, to rely upon natural sources alone.

Successful photography at night is comparatively of recent date, the well-known views of London by Paul Martin about 1896 or 1897 being among the earlier examples, if, indeed, he was not the pioneer in this field. Following his have come many other photographs, till not only landscapes have been included, but such ephemeral objects as bursting rockets, and other forms of fireworks. Lightning flashes are particularly easy. The astronomer plots the stars of heaven on his photographic plate and calls it good. But to him who seeks in night photography the expression of an artistic impulse, a landscape, taking the word in its broadest possible meaning, possesses the greatest charm. Many attractive pictures have been produced, and illustrated in this magazine, relying often for the best pictorial effect upon the presence of snow or water upon the ground, for both of these lend reflected light as well as aid the beauty of the composition. Few photographs, if any, have included the moon. While depending on its light for the making of the negative, the principal luminary of the night, and one that so frequently aiding the painter by its presence would seem most fitting for introduction into a pictorial photograph, has been markedly neglected by the photographer. When this fact is called to the attention, does it not seem strange? And yet he has the best of reasons; the task has been beyond his means to accomplish, or, at least, he has thought so—much the same thing from a practical point of view.

Let us see what some of the difficulties are that have stood in the way of such photographing of the moon. Every one understands that a certain amount of light, be it direct upon the object or reflected, is necessary to impress an image on a sensitive photographic plate; and further, that the duration of the exposure varies more or less directly with the intensity of the light that is admitted to the plate. While this time may be but the infinitesimal part of a second, say one-thousandth, for a bright object under a strong sunlight, yet for a landscape under the weak light of even a full unclouded moon, the exposure must be from three to thirty minutes. This is with the best grade lenses. With poorer instruments, a moon obscured by clouds, or but partly illumined, the exposure may run into hours; and this in spite of some snow or water to aid in the distribution of the light. The source of the light is stronger than any reflection, however bright; when that reflection must come from dull terrestrial objects, the difference is enormous. Thus, for example, while the objects on the earth may need one hour to impress their image, even in outline, upon the plate, the moon, which provides the light, will require but a number of seconds to do the like for its own form. It will readily be understood that, under such circumstances, in a view including both the moon and the landscape, one or the other will be hopelessly over or under exposed.



FREDERICK HAVEN PRATT PORTRAIT OF H. H. B.

Yet again, let us suppose an extremely favorable case, when by favor of newly fallen snow the reflected light is strong and the landscape exposure may be reduced to a few minutes. Ah! Here perhaps the difficulty may not prove too great to bridge. Let us see. The diameter of the moon is equal to about one half of one degree. This being so, it will take not far from two minutes for it to change its apparent position in the sky by an amount equal to its own width. Unfortunately it moves a corresponding distance on the photographic plate in the same time. By consequence, if the exposure be lengthened sufficiently to include the landscape, the moon will appear in the picture, not as a disc, but as a more or less elongated streak of brightness across the sky. Plainly this will not do; and yet if the exposure be limited to the few seconds necessary to take a distinct image of the moon, no trace of other objects will be found upon the plate. Various attempts have been made to overcome these obstacles, some of which may be dismissed with a word. First, there were the cases of masquerading the sun into an appearance of his weaker sister. Underexposed plates with a strong sky posed as "moonlight effects." They were very pretty, some of them, answered very well to some extent, but were not genuine, and not one of them exhibited even a pretended moon. It was always just behind

MRS. HERBERT E. CHANDLER A PORTRAIT

the clouds, the reason for which will be given later. They then reversed the process and took a landscape with so-called underexposure under a clear sun, showing shadows. Later the moon was taken on a separate plate and "double-printed" into the daylight landscape. Once more a makeshift, and the result questionable as to a truthful rendering of the appearance of a moonlight night. The next and best method was to photograph the moon with a proper exposure, usually when about to set. Then the lens would be covered and the photographer could amuse himself with his pipe, his bowl, and his fiddlers three, until that moon had set. And the sooner it set the better. The troublesome moon once out of the field of vision, the landscape could be taken in the faint light of night at the elegant leisure of the gentleman with the pipe. This was genuine and might be reasonably expected to satisfy. Why did it not?

It will be noticed that, in a painting, the moon *appears* in proper proportion to the other objects, and the eye is satisfied. In reality it is painted too large. This is evident when explaining a photograph made under the method last outlined. The moon is there; but what a moon —a puny, insignificant affair, a dot, a pin-head moon! Scientifically accurate, it was impossible to content the mind with an image of a diameter often but about one one-hundredth part

of the width of the photograph. And this also is the reason why the sun was always behind those clouds; its image is scarcely more imposing than the moon's. The task still remained to photograph the moon and have it appear of apparently correct dimensions to the eye. And here at last the means will be found in that same telephotographic lens which has been lying at hand these ten years past. Let the landscape be photographed, with an ordinary positive lens, when the moon is high in the heavens. If a lens of moderately long focus be used, and pointed southerly, the shadows will fall toward the observer, but the moon itself be high out of vision. After a sufficient time has been given to the terrestrial objects, substitute a telephoto lens, elevate the front of the camera to bring the moon's image within the field of the plate, and the queen of the night may be photographed on a scale to suit the most fastidious. In practice it will be found unwise to attempt a diameter exceeding about one half inch, owing to the fact that longer exposures are required for larger images with this lens, and that the moon stubbornly refuses to bide the hest of any modern Joshua. An image of such a size, however, will appear ample, even on the largest plates.

While the correct process has been given above in a few words, it should not be supposed that the successful taking of such a photograph is a matter of no difficulty whatever, though on the moderately expert it will impose but a little extra care. There are the shadows to be considered, wherefore the telephotographic image must be carefully and correctly placed upon the plate; hence the advice to take the moon well in the south. It will then merely be necessary to space it somewhere near the center of the plate. But if water, or other brilliant reflecting surface, be included, the task at once is complicated. The landscape exposure will have registered a bright path upon the water. As some time must be spent in changing lenses, readjusting the camera, and otherwise preparing for the telephotographic exposure, allowance must be made for movement of the moon; for a small displacement from the proper position is more quickly noticed in this case than when the eye has no means of judgment save the heavy shadows. The terrestrial objects having vanished from the ground glass when the camera is pointed high into the sky, this spacing must be accomplished by a system of measurements and allowances duly made during the preliminary focusing upon the landscape. Again, both exposures must be approximately correct, by no means an easy task with the variations of light and clouds that occur at night. That for the moon itself varies somewhat upon the amount of its disc which is illumined, while the reflected light changes to a great extent at different times during the month. Under these circumstances the hit or miss principle will not do. A careful record must be kept of the failures during early practice, and, when once success has been attained, endeavor should be made to repeat the conditions as nearly as possible.

A final hint may be of service to any one who desires to experiment along these lines. Moonlight is a somewhat yellowish light. Orthochromatic plates are more sensitive to yellow light than ordinary plates. This latter fact is well known, but seems to have been forgotten by many enthusiasts in this field.

CHESTER A. REED PREPARING BREAKFAST

## THE WORCESTER EXHIBITION OF PHOTOGRAPHS

WILFRED A. FRENCH, PH. D.

THE second annual exhibition of photographs, which was held in the Art Museum of Worcester, Massachusetts, for four weeks beginning November 12, last, was an event of more than passing interest. The main object was to demonstrate to the citizens of Worcester the advance that photography had made since the autumn of 1904 and, incidentally, to encourage the local workers by offering, for comparison with their best efforts, pictures by cotemporaries of superior ability. The latter class was almost entirely solicited, being indicated as a loan collection, and comprised standard works of the American Photo-Secession and the American Salon, each of these two schools being hung in a class by itself and separately. The efforts of the Worcester workers, while developed as individuals, each independent of the other, and not as the result of a concerted movement, showed qualities of a high order, but demonstrated the need of an intelligent and sympathetic controlling force. There was so much that indicated first-rate technical ability, sincerity of purpose and a general tendency to work in the right direction, that if these scattered forces were brought together and directed by an artist of strong individuality, executive ability and a sympathetic personality, and inspired by high motives, the result, we believe, would be a force to be reckoned with in the world of photography. We are not sure but that a worker, possessing these necessary qualifications, could be found among the contributors to the Worcester section of the exhibition. That a city, which stands forth preeminently as a musical center, having an university of considerable prestige and an art museum destined soon to rank next to the Metropolitan Museum of Art — in view of

the unexampled munificence of the late Stephen Salisbury — should have no photographic organization, is astonishing, to say the least.

The Art Museum, in providing the finest possible accommodations for this photographic exhibition, not only showed that it recognized the high position photography holds to-day among the fine arts, but indicated sympathy of a practical sort, which evidence of good will is in itself an important factor towards the suggested centralization and organization of the photographic element in the city of Worcester. A more auspicious time for such a move could not be conceived, and to launch a society on the eve of one of the most important events in the art annals of this country — the intelligent disbursement of nearly five million dollars for art purposes by the Worcester Art Museum — is a happy coincidence, and should stimulate the fortunate members to efforts of unusual promise. We sincerely hope, therefore, that the photographic forces of this city will realize to the fullest extent the opportunity which is theirs and theirs only. No time should be lost and the watchword should be "Let us get together." Once set forth on the road toward achievement and under the intelligent and enthusiastic leadership of a man who stands for the highest and noblest in art, the photographic society of Worcester will not be long in reaching the goal. As it is predicted that, enriched with art treasures of rare value and exceptional educational facilities, the Worcester Art Museum will attract connoisseurs and art students from all parts of the country, even from the capital of the state, so it may be that the infant prodigy among New England's photographic bodies will expand into a flower of rare fragrance, beauty and attractiveness.

Owing to the fact that the amateurs of Worcester have worked singly and alone, and uninspired by organization or individual cooperation, their exhibit showed a lack of unity of purpose and of the impress of leadership. And yet, while the majority of prints evinced a certain distinctive quality of design, there were instances of a well-defined and pleasing individuality. To this class belong No. 10, "Firelight," in which the chiaroscuro is judiciously managed and the figures easily and naturally grouped, and No. 7, a broadly treated winter landscape — both prints by Frederic Bonnet, Jr.; No. 49, "The Old Mill," by Herbert R. Cummings, in which the main subject is quietly relieved against the surrounding landscape; No. 73, "By the Old Fish Wharves," by Harry N. Davis, and No. 135, "The Salute," by Chester A. Reed, displaying a fine sense of composition and uncommon pictorial effect. The work of Mr. Dwight A. Davis and Mr. Frederick Haven Pratt, however, rises to the dignity of Secession calibre, and that is saying much. The former's pictorial sense enables him to produce work that is artistic to a very high degree, fulfilling requirements of well-established rules, without being stiff or artificial, and with a fluent spontaneity that gives his pictures a restful and dignified appearance. These sterling qualities are discernible in such pictures as No. 55, "Softly the Shadows Fall," No. 56, "As the Mist Rises," and No. 66, a figure study entitled "Revery." Mr. Davis showed twelve prints, most of

DWIGHT A. DAVIS
AS THE MIST RISES

which of a character that stamp him as an artist of uncommon worth. In Mr. Pratt we come face to face with an artist who has won his laurels at the American Photographic Salon, which, in its journey through the United States, shows two of his prints, "Landscape in Northern Italy," and "Study of a Face," duplicates of which, No. 123 and 124 respectively, had a prominent place in the local section of the Worcester Exhibition, and which were reproduced in the PHOTO ERA of December, 1905. In the remaining prints of his exhibit Mr. Pratt demonstrated to what extent diffusion of outline may be carried by the use of the uncorrected lens, the object, evidently, being to create a striking atmospheric effect, a quality which judiciously emphasized, characterizes the original portrait-objective — the Petzval combination. A profile of a young man, showing this optical defect in the lens in a very marked degree, seems to defy close observation, but, when viewed at a distance of about ten feet, the confusing aspect of the print disappears and the effect is not at all bad. While excellently done, the portrait of D. B. by Louis F. Bachrach, shows the prevailing tendency among amateur and professional workers alike, to give undue emphasis to the face, by abnormally darkening or by obscuring the rest of the figure, which is usually accomplished in the making of the print. This is so obvious as to detract from the sense of spontaneity on the part of the artist, which the picture should convey. The height of art is to conceal art, and in the finished photographic print there should be no evidence of dodging, doctoring or faking. Honest, straightforward and convincing work should be the rule, which implies that photography should be practiced under conditions as favorable as possible, and that the principal working-tools should be of the right kind. Among the portrait and figure studies deserving special mention are those of Mrs. Herbert E. Chandler, whose "A Portrait," No. 21, possessed much charm. The very interesting picture, No. 137, "Preparing Breakfast," by Mr. Chester A. Reed, which has earned considerable celebrity for the artist, shows what patience and observation combined with effective working-apparatus will accomplish.

The interest of the exhibition was greatly enhanced by the loan collections. First in importance was a number of prints illustrating the work of the Photo-Secession, as exemplified by such well-known workers as Edward J. Steichen, Alfred Stieglitz, Clarence H. White, Eva Watson-Schuetze, Sara C. Sears, William B. Post, Joseph T. Keiley, Herbert G. French and others. These prints were on a wall adjacent to the principal collection of oil-paintings belonging to the Art Museum. Thus one had an excellent opportunity to note the result of comparison, which was inevitable, between works by noted painters and the expression of advanced ideas in pictorial photography. Curiously enough, many of these prints held their own, by dint of an original and strong personality, while others gave way entirely, vainly pleading for their *raison d'être*. In the adjoining gallery, with the Worcester section, was hung the work of miscellaneous exhibitors from outside of Worcester. Here we found much admirable work, the study of which must also have been inspiring to local

FREDERIC BONNET, JR. FIRELIGHT

workers. William H. Zerbe contributed ten of his most delightful pictures and there were valuable additions also from Mary R. Stanberry, Arthur M. Curry, Louis Fleckenstein, Eleanor W. Davis, Jane Dudley, Wendell G. Corthell, F. Holland Day, Horace Parks Lane, George W. Leighton, W. and G. Parrish, William T. Knox and others. In closing this review, we cannot refrain from criticising the tendency to hang prints closely together, as was the case at the Worcester exhibition. This overcrowding, noticeable also in exhibitions of paintings in art galleries, due to an evident desire to economize space, is decidedly detrimental to the successful assertion of the individual pictures, is fatiguing to the vision of the visitor and, on the whole, is inartistic as a possible decorative scheme. Aside from providing increased exhibiting facilities or reducing the number of pictures to be shown, an easy and practical way to overcome the difficulty is first, to cover the walls with burlap of suitable color; then, attach the prints, unframed, separated from each other by a space four inches or more in width, short nails being used to hold each picture with its cover glass in place. Such a plan yields obvious additional advantages and should commend itself particularly to itinerant exhibitions, such as the American Photographic Salon, now *en tour* through the United States.

# NOTES ON ENLARGING

EDWARD S. KING

(Assistant in charge of photography at Harvard Observatory.)

IF one desires to do much work in enlarging, a special room is a great convenience. The enlarging room at our Observatory is next the dark room. Its length is about 15 feet and the general direction is north and south. A large mirror reflects light from the sky through an opening in the north wall of the room. When the sky is covered with patches of cloud, a paper reflector is found to be better than the mirror. If sunlight is needed, a heliostat is used, and a plate of ground glass interposed to produce uniform illumination. The ground glass must not be placed too near the plate to be enlarged, as its granular surface may be photographed on the enlargement, when the aperture of the lens is cut down. A mirror supported by a framework is sometimes employed instead of the heliostat, but it requires occasional attention to keep the beam of light on the plate.

The plate is fastened to a frame, made from a board, which is held by friction between cleats just inside the opening in the wall. This arrangement permits the plate to be moved in any direction and even to be rotated in its own plane. Special frames are provided for different sizes of plates, the largest plate being 14 x 17 inches. A large camera mounted permanently on a pier in front of the plate encloses the opening, and carries a lens which can be set accurately to any desired focus by means of a screw. As the room is dark, and has an entrance from the dark room, no holder is required, the sensitive plate being brought in one's hand and placed on the easel which is mounted on a track running the length of the room. The track is graduated to indicate the number of inches between the original and the sensitive plates. The easel as well as the lens can thus be restored to any settings frequently used. One can compute the positions for any desired enlargement, and set the lens and the easel by means of the graduations.

For finding the approximate positions of the two plates with respect to the lens, the formula for a simple lens will answer very well. We must first know the focal length of our lens. The old rule of finding the distance between the image and the object when they are of the same size, and dividing by 4, is good, but, in practice, I think it is preferable to set also at some greater enlargement than unity. A convenient rule is, to find the distance between the plates when the enlargement is exactly 4 times and multiply by 4–25; or 10 times and multiply by 10–121. The results from these three ways probably will not agree exactly, but a mean of all will be near enough for our purpose. Having the focal length, we multiply it by the times of enlargement plus 1, which gives the distance from the lens to the sensitive plate. Dividing this result by the times of enlargement, we have the distance of the lens from the original plate. The sum of the two values is of course the entire distance between the two plates. For example, if an enlargement of 5 times is desired with a lens of 10 inches focus, $10 \times 6 = 60$, $60 \div 5 = 12$, and $60 + 12 = 72$ give the three distances.

The distance between the plates, or the easel setting, is the chief requisite for determining the enlargement, as the position of the lens can be obtained by focusing. When one particular lens is used frequently, it is convenient to plot the settings of the easel for different enlargements. Figure 1 shows such a curve (on a reduced scale) for a lens of 10 inches focal length, and corresponding to enlargements from 1 to 10 times.

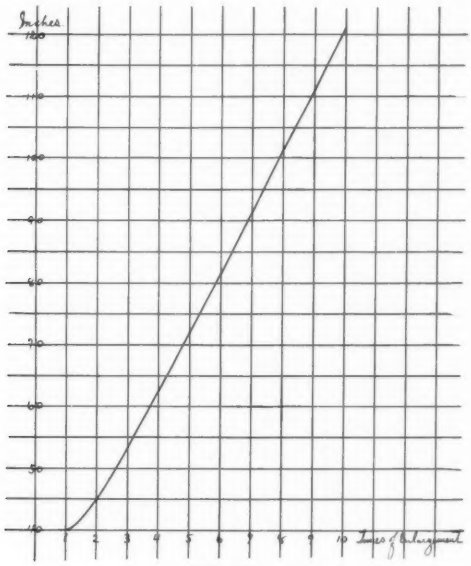



FIGURE 1

A slight change in the position of the lens made to improve the focus will not affect the scale appreciably, except when the enlargement is near unity. In that case it is better to set the lens and correct for focus by moving the easel. For adjusting the position of the image and obtaining the focus, a dummy plate covered with white paper is used. A piece of white paper held in the hand is of assistance in determining whether the focus is in front of the plate or not. Judgment must be used as to the sharpness of focus obtained. Professor W. H. Pickering found that bad definition is sometimes valuable for destroying the grain of a negative. Figure 2 shows the image of a double star enlarged in focus and out of focus, the enlargement being the same in both cases. The silver particles which appear prominently in the first photograph are almost obliterated in the second.

The question of what exposure to give is frequently a perplexing one, although an old operator will be able to make a close estimate by noting the

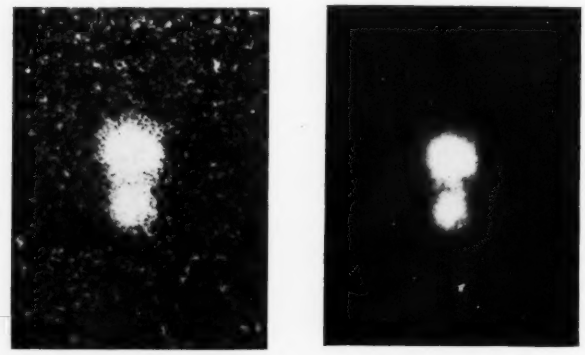


FIGURE 2

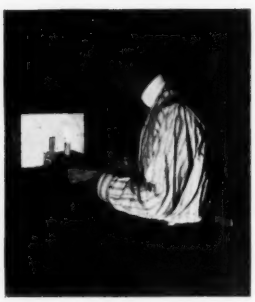


FIGURE 3

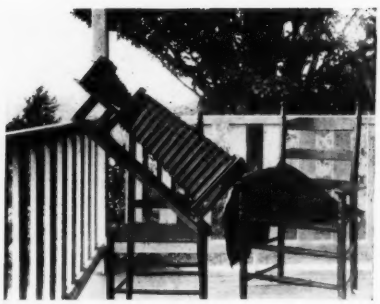


FIGURE 4

brightness of the light on the dummy plate. All persons, however, cannot turn their eyes into light meters, and some better means of measuring the light through all its transitions is desirable. It will not always do to expose a trial plate, as the conditions may change completely before it can be developed and examined. A simple test is to interpose a lighted candle in the beam of light from the lens and note the shadow of the candle itself as cast on the dummy. This effect is shown in Figure 3. By moving the candle toward the dummy, a position is found where the light from the candle just obliterates the shadow cast by the light from the lens. The distance of the candle from the dummy is a measure of the light, and the exposure is proportional to its square. For example, I found for a certain class of work with Seed Process plates that squaring the distance expressed in inches, and dividing by 4, gave the exposure in seconds.

HERBERT R. CUMMINGS THE OLD MILL

The relation of the exposure in seconds to the square of the distance in inches is easily found by trial, for we can use the candle test with exposures obtained by any method, and determine the ratio from the best results. The kind of candle is not material so long as we use the same for all our experiments. There is some difficulty in noting just where the shadow disappears, and different eyes may vary in fixing the exact point. In general, a gentle lateral movement of the candle will enable one to see the shadow better, and make the observation of the disappearance more accurate. If the light from the lens is too faint to cast a shadow of the candle at a reasonable distance from the dummy when the aperture to be used for the enlargement is in place, we may increase the aperture for the test and allow for the change in the computation. This method of finding the exposure, if not exact, nevertheless affords a better approximation than given by the unaided judgment.

For those who do not have a suitable room for enlarging, various devices are available. A large 8 x 10 camera, which has the camera-back as well as the lens movable by a rack and pinion, is most convenient. The rules for adjusting the relation of the lens to the plates will enable one to know his limitations and plan accordingly. For example, with a lens of 6 inches focus, and a camera extending to 30 inches, we find that 30 divided by 6 gives 5. As 5 must be the times of enlargement plus 1, it appears that we are limited to an enlargement of 4 times, if we use the camera to enclose the space from the lens to the sensitive plate. Figure 4 shows two cameras mounted on a board for enlarging, and directed to the sky for illumination. The work of mounting required less than an hour. The 4 x 5 camera is not really necessary, as a frame for holding the

plate and a piece of focusing cloth could take its place. With such an apparatus one can do enlarging on the veranda during his summer vacation. In all the work of enlarging, it is important to remember that the front component of the lens must be directed to the sensitive plate. This calls for the reversal of the lens-board of the large camera in the illustration.

## A PHOTO-ERA TOUR IN EUROPE

*(Continued)*

### Hamburg and Berlin

WILFRED A. FRENCH, PH. D.

OUR first introduction to characteristic German life was an evening spent at the Hamburg Rathskeller, a spacious restaurant, and, as is usual in Germany, situated in the basement (*Keller*) of the *Rathaus* or Town Hall; hence its name. Our camerists here sipped from quaintly-fashioned steins Waldschlosschen and Wurzburger, two popular brands of native Lagerbier, to the accompaniment of exhilarating music from a gypsy orchestra; were impressed by the elegantly-uniformed German officers, pompous and conceited, who were present in large numbers; noted the many curious and admirably executed frescoes and carvings with queer mottoes in old German, visible everywhere, while the hum and the babble of guttural conversation, in a continuous stream, almost dulled our sense of hearing. The scene, almost confusing in its sense of novelty, revealed to the stranger the power of allurement of the high-grade German restaurant, as we had occasion later to observe in Berlin, Dresden, Leipsic, Munich, Heidelberg and other cities of the Empire. Before leaving the noble city of Hamburg, with its 800,000 population, we paid a visit to R. Duehrkoop, a man who, in building up an enviable reputation as an artist and a successful business man, has added not a little to the fame of his native city. Turning from the Alsterdam, at the Binnen-Alster, into Ferdinand-strasse, we soon reached No. 43, the atelier of the celebrated photographer. We were most cordially received by the artist, who graciously, and with modest mien, consented to show us through the establishment — a model one in arrangement and equipment. We were surprised at the large number of pictures here produced, proofs of a rare capacity for work. The most surprising feature of Herr Duehrkoop's remarkable activity is the versatility of his creative power, coupled with a strongly individualized artistic nature, which is noticeable in all his productions. Educated and cultured, in touch with the important movements in art and susceptible to their elevating influence, and favored with the appreciation of a large and fashionable *clientèle*, Herr Duehrkoop enjoys all the advantages of a man who has labored devotedly and intelligently in his chosen art.

In spite of its marvelous growth and obvious attempts to eclipse Paris in architectural magnificence, Berlin disappointed us. By previous arrangement, we were comfortably quartered in a pension in the Potsdamer-strasse, and were

near the famous park of the Thiergarten, the splendid opportunities to beautify which have seemingly not been fully appreciated. The famous Sieges-Allee — a broad avenue separating two rows of elaborate marble statues, numbering thirty-two and representing the antecedents of the present German Emperor — exemplifies the munificence as well as the personal artistic taste of Kaiser Wilhelm II. We were impressed only with the enormous cost which these sculptured monuments represented. Our individual opinion of the art value of the statuary — and on this point our party was strangely unanimous — was at variance with the view expressed by newspapers anxious to propitiate those high in authority, but we discreetly refrained from giving audible utterance to our convictions. In another part of the Thiergarten is the Richard Wagner monument in white marble, by Professor Eberlin, which was unveiled a few years ago. It possesses several good points, notably the figure of Wolfram von Eschenbach, in front, and, at the left, Brunnhilde with the dying Siegfried, the group representing an episode in the opera *Die Walkuere*. There are numerous new monuments scattered through the park, and various parts of the city, most of them of doubtful artistic worth. Even the magnificent and imposing monument of Emperor William I by Reinhold Begas, near the Schloss, erected at a cost to the nation of four million *Reichsmarks*, cannot be compared with the superb equestrian statue of the Great Frederick, by Rauch, situated in the principal avenue, Unter den Linden, nor with the classically noble statue of the Great Elector, by Schlueter, not far away. For reasons not difficult to explain, our photographic muse was indifferent during our stay in the Metropolis, but we found compensating delights in the National Picture Gallery, where one needs to spend months and not days, so rich and rare are its art treasures. Nevertheless I was surprised and grieved to see here, occupying a place of honor, Albrecht Duerer's masterpiece, the portrait of Hyronimus Holzschuher, which, until a few years ago, had hung in the Germanic Museum of Nuremberg, the one priceless gem of its art gallery and the means of attracting connoisseurs and art students from all over the world. Inquiry into what seemed to me an example of high-handed greed on the part of the Prussian government, elicited from the guard a shrug, accompanied by the brief, but scarcely audible, remark "His Imperial Majesty."

Our craving for music of the kind not obtainable at home, was gratified by a performance of *Lohengrin* at the Royal Opera House, with a great cast, and Dr. Muck as musical conductor. Although I had heard the opera in the same house several years before, I was not prepared for so monumentally fine a performance, from principals, chorus and orchestra alike, as was given on this occasion. My companions were almost overcome by the beauty, the strength and the technical perfection of the presentation. The artistic *ensemble* of the martial features of the work, imposing and thrilling in the extreme, was in itself a revelation and moved us to enthusiastic expressions of delight. Through the courtesy of a friend, we attended the following day a rehearsal of the celebrated Lehrergesangverein, a male chorus of three hundred voices. Through

J. C. SCHAARWAECHTER GERALDINE FARRAR

the courtesy of its conductor, Prof. Felix Schmidt, the club sang a number of selections for our special benefit. Actuated largely by patriotic motives, we attended also a presentation of *La Traviata*, with our countrywoman, Miss Geraldine Farrar, in the title rôle. We secured excellent seats in the III Rang, esteemed the best location for hearing and seeing, for 4.50 Marks each. When "the Farrar," as she is referred to professionally, assumes an operatic part, she does not enjoy the sympathetic cooperation of those about her, for although being, in the opinion of unprejudiced critics, the most finished vocalist and actress at the Berlin Opera and a *protegée* of the German Emperor, she is a foreigner, and as such cordially disliked by her colleagues. Yet she carries herself tactfully, and in all her actions commands universal respect, even of

WILFRED A. FRENCH, PH. D. WAGNER MONUMENT, BERLIN

her jealous rivals. We had been told that, while she is superb as Juliet, Marguerite, Leonora and other important operatic characters, she really excels as Violetta and on this occasion gave incontestable proof of her splendid vocal and dramatic powers, her magnificent work receiving enthusiastic recognition from a large and brilliant assemblage. It was not the *Auslaenderin*, but the successful, triumphant artist, receiving the homage of a thoroughly musical audience; for like art, music is universal. Nevertheless, we were proud of the fact that it was an American who had achieved this splendid success and, twenty minutes later, we were celebrating the event at the Kaiserkeller.

Fearing that we were about to be overwhelmed by a regular, musical avalanche, we took a bold stand and, thoughtlessly leaving our cameras behind, made an excursion to Charlottenburg, formerly a distant, outlying village, but now closely united with Berlin, the once vast marsh separating the place from the Capital now being the most magnificent residence section of the great Imperial city. I made the trip in 1878, driving in an open carriage over a long, dusty road, through a wide stretch of flat, monotonous country. To-day, what a transformation! At that time Berlin had scarcely a million inhabitants.

Now, after successful attempts to surpass her old rival, Vienna, at least in point of population, it boasts of 2,034,000 inhabitants, or, including the suburbs — numbering twenty-seven municipalities — 3,021,000, very little of this vast increase in population representing the "scum of Europe," which, fortunately for the well-being of the empire, flocks to other parts of the world.

Our object in visiting Charlottenburg was the royal Mausoleum, with its famous recumbent figures of William III and his lamented consort, Queen Louise, sculptured by the loving hand of Rauch, who, originally a gardener, was taught the art, which he served so admirably, at the expense of the Queen. Since my former visit to this sacred spot, the well-meaning but somewhat overzealous present sovereign had disturbed its simple and impressive grandeur by adding the sepulchral monuments of his grandparents, Emperor William I and Queen Augusta, neither of which has increased the art value of the mortuary chamber, which might reasonably have continued to be identified solely with the spirit of a noble and patriotic woman and the work of a great artist. Another example of the desire to contribute to the cause of art is the startling marble figure of the Archangel Gabriel in the vestibule, designed by His Imperial Majesty. One of our party, not fully acquainted with the gravity of the offense in openly criticizing acts of the head of the Imperial Government, ventured to ask an attendant what such a violation was called. The answer came promptly "*Majestaetsbeleidigung.*" Recoiling at the awe-inspiring designation of what seemed to her a perfectly legitimate diversion, the lady replied, somewhat surprised: "I should think the name in itself would be a criminal offense."

Now with all candor, the German Emperor, William II, is a most remarkable man, fully deserving the unstinted admiration of his subjects and, indeed, of every fair-minded person. He realizes to the fullest extent the value of personal interest and, therefore exhibits deep, sympathetic interest in every important industry and enterprise in his dominion. His activity is phenomenal. He also knows the value of advertising, for which reason he is the most talked about person living to-day. He is constantly doing something to be in evidence, which naturally increases his importance in the eyes of his people. The vitalizing influence of his personality is felt from the steamship line, — that sends magnificent and superbly-equipped vessels to every important seaport of the world, — to the Royal Porcelain Manufactory at Berlin, now the leader of that valuable industry in Germany. Thus he may consider it necessary to be a practical sailor or to make verbal suggestions in firing the decorated clay, in order to emphasize the value of his opinions on these subjects. He is a patron of the musical art and, although he does not himself perform, gives intelligent advice or an encouraging word to the interpreting artist. The fine arts do not languish for lack of stimulus from his Majesty, for he not only devotes serious thought to the work of the brush and the chisel, but gives freely from his private fortune. For proof, witness the wonderful Sieges-Allee in the Thiergarten and the three hundred or more bronze equestrian statues of

William I scattered throughout the empire, although the latter have been erected at the expense of the nation. In all that he does he is moved by a desire to so stimulate the development of German arts and industries, as to win for that country commercial as well as military supremacy among nations. He has already done much to make Germany the world power that she is, and with his help she will be in a position — well, we shall see. But laudable also as is his ambition to advance the fine arts in a corresponding degree, he seems to forget that such a process must be entirely spontaneous and that peculiarly favorable conditions must prevail. The fostering influences must be other than pecuniary, and it is doubtful if, with all his good intentions, Emperor William will be able to match that period of German art which the creative genius of Klenze, Kaulbach and Schwanthaler made so illustrious. His Imperial Majesty knows that this is the age of commercial and industrial supremacy, and that the time is seemingly not propitious to the *raison d'ètre* of a master genius. It is feared, moreover, that the ambitious German Emperor may not be as qualified to speak on questions relating to the fine arts as on topics of a more practical character. At the present time German pictorial art appears to be in a wonderfully disordered state, a near adjustment of which seems almost hopeless; but William II is scarcely the man fitted to bring order out of chaos, and matters are not likely to improve under existing conditions.

We were considerably surprised at the paucity of what we considered artistic photography in the great imperial city. Some of the older camerists remembered the old familiar names of Loescher and Petsch, and Schaarwaechter, whose establishments, we discovered, were still being continued, but the work had not changed from the days when Dr. Hermann Vogel was the active scientific authority in Berlin. The military element, totally supreme, its dominating influence permeating everything, visible and invisible, and controlling the very thoughts of the people, has put its cold and stagnating impress upon the life of the fine arts. What hope for photography? The photographic portraits of the officers of the imperial army must possess the utmost technical finish. Every button of the uniform of the proud wearer must be clean-cut, each decoration must stand out with perfect clearness, and the elegance of the *tout-ensemble* rigidly preserved. The wives and daughters naturally follow suit, and the civilian, forsooth, only too anxious to echo the views and opinions of the dominating class, dutifully fall in line. Several years ago a photographer of ability, means and influence, consumed by a desire to reveal the artistic possibilities of his profession to the benighted people of Berlin, ventured to open a studio, but, after an heroic struggle of two months and receiving no patronage from lack of appreciation, closed the place. While strolling along the Mauer-strasse one day, however, the eagle-eye of a camerist discovered in a narrow doorway a frame of photographs that had the right ring. It bore the legend "Carl von Duehren, Moderne Portraets." Overjoyed at the unexpected find, we ascended the four dark flights of stairs and interviewed the artist, a young German, full of courage and hope, but not embarrassed by an abundance of orders. His

only instrument, an old-style whole-plate Voigtlænder, inherited from his father, also a photographer, yielded well-rounded, atmospheric portraits, which, printed on English platinotype paper in sepia, represented our artist's beautiful conception of the new photography. We lingered over an hour in the studio of this talented young artist, modest and engaging, with his face resolutely set in the right direction and satisfied with a fair amount of pecuniary success. We have since learned that Herr von Duehren has been very fortunate in his business venture and is now enjoying well-deserved prosperity.

It is not the purpose of these sketches to chronicle the doings of our party from day to day, nor to enumerate the multitudinous objects claiming our admiration, most of which appeared to us like old friends, having long been made familiar to us through photographs. To the majority of our little party travel in Europe was a novel experience, which, together with an ardent desire to make the most of every opportunity, to exercise discrimination in the selection of objects to be studied and to contemplate them intelligently, conflicted with our original plan to dutifully record our experiences with the camera. Truth to tell, the spick and span appearance of Berlin — to all intents and purposes a brand-new city — offered few *motifs* for pictures. One morning a number of us made a special photographic excursion to the neighboring city of Potsdam, romantic and picturesque, beautifully situated on the Havel, a tributary to the Elbe. The Schloss, the Mausoleum and the Palace and Park of Sanssouci — identified with Frederick the Great and Voltaire — excited our curiosity and admiration and yielded valuable photographic returns. The other camerists, in the meantime, had paid a visit to the optical works of C. P. Goerz at Friedenau, a suburb of Berlin, where they were most cordially received and shown through the large establishment, where the Doppel-Anastigmat was born and where thousands of these popular lenses are produced yearly. They were also deeply interested in the Trieder Prism Binoculars and numerous other optical specialties for which the name of Goerz is so widely known. In deference to the wishes of the majority of our party, we made a slight *détour* in our journey, going to Leipsic by way of Braunschweig, for the purpose of visiting the world-renowned optical works of Voigtlænder & Son.

(*To be continued.*)

## STRAY LEAVES FROM THE DIARY OF THE OLDEST PROFESSIONAL PHOTOGRAPHER IN THE WORLD

FOUR years ago, on Aug. 7, 1901, there died at Crawford, N. H., whither he had gone for rest, Josiah Johnson Hawes of Boston, the oldest living professional photographer in the world. He was ninety-four years old, and did his own posing, developing, and printing until the last. He had been associated with the process of Daguerre from the time of its introduction into America in 1840. He built the first photographic studio with a skylight ever erected in this country. He sat at the cradle of

DWIGHT A. DAVIS SOFTLY THE SHADOWS FALL

photography and helped to rock it into life. He saw photography developed from modest beginnings into a popular science, then into a world-embracing industry, and finally its recognition as a fine art. He was part of this wonderful growth and development for sixty years — an experience that seldom falls to the lot of man.

We have recently been favored with some Mss. copy from an autobiography which we reproduce here through the courtesy of Dr. E. S. Hawes of the Brooklyn, N. Y., Polytechnic School.

"I was born February twentieth, 1808, in the town of East Sudbury, Mass. (now called Wayland). Seventeen years of my early life were spent on a farm. I was then apprenticed to a carpenter, and learned the carpenter's business, until I was twenty-one, and spent two years as a journeyman carpenter.

"Happening one day to come across an ordinary oil painting which I was admiring, a friend of mine asked me to close one eye and look at the picture through my hand with the other eye. The surprising change which took place, from its being an ordinary flat canvas to a realistic copy of nature with all its aerial perspective and beauty, so affected me, that from that time I was am-

GEORGE BUTTLER ROAD THROUGH THE WOODS

bitious to become an artist. I purchased books, colors, and brushes, and commenced the study of art.

"I practiced miniature painting on ivory, likewise portraits in oil, landscapes, etc., with no teacher but my books.

"About this time — 1840 — the excitement of the discovery of the daguerreotype took place; and some specimens of it which I saw in Boston changed my course entirely. I gave up painting and commenced daguerreotyping in 1841.

"My partner, the late Mr. Albert S. Southworth, and myself built a studio and carried on the business in Boston for the next twenty years. We had the reputation of making as fine daguerreotypes as were made by anybody. Some of them were very large ones — 20 x 24 — probably the largest ever made on silver plates.

"From 1841 to 1854 we made daguerreotypes only. After that the daguerreotype was given up for the photograph.

"As I was one of the first in the business, I had the whole field before me. In the early period of the art, all daguerreotypes of buildings taken from the ground were smaller at the top than at the bottom, the lines sloping inwards. In order to correct this, I made a camera with the holder for the ground glass and the plate frame suspended from a universal joint which could be set at any angle sufficient to correct the lines. This camera my partner and I used for ten years before any one else could make a picture with the lines of architecture parallel. This camera also had a holder made at the same time, the same as is now called the curtain holder (a device which has since been patented). The somewhat celebrated combination of lenses called the Dallmeyer lens, I made and used fifteen years before it was known under its present name. It was used for copying Washington Allston's sketches on copper plates suf-

FREDERIC A. MOORE OCTOBER WOODS

ficiently silvered and the paintings of Gilbert Stuart. These plates were then engraved by John Cheney, following the lines of the daguerreotype.

"I think I made the first stereoscopic picture made in America. I am sure it was the first made in Boston.

"My partner and I received the gold medal of the Massachusetts Charitable Mechanics Association for a reflecting stereoscope. We likewise procured patents in this country and in Europe for a method of making stereoscopic pictures by two movements, lateral and perpendicular, which was thought to be an improvement on a single movement. Any one can test the idea for himself by looking at a landscape where there are many horizontal lines, by turning his head on one side so as to raise one eye a little above the other. He will perceive the stereoscopic effect.

"We were also the originators of the multiplying camera.

"We had many celebrated men and women of the time as our customers, among them Daniel Webster, Rufus Choate, Governor Boutwell, Judge Shaw, Ralph Waldo Emerson, Jennie Lind, Kossuth, Oliver Wendell Holmes, Longfellow, Dickens, Channing, and in fact almost every Bostonian of note, as well as many foreign celebrities."

In September, 1901, we wrote of Mr. Hawes as follows: —

"The PHOTO ERA is glad to pay this tribute to his worth here, because of the distinguished services he gave to the art of photography. The generation of great men and women who knew him, profited by his knowledge and marveled at his art-beautiful, are passed and gone. He was the last link in the long chain connecting the past and present of photography. But his memory will live in the hearts of those who delight to make pictures and who honor the profession of which he was such a distinguished member."

E. P. WELLS MOUNT VERNON

## FRANKLIN, WASHINGTON, AND THE FRENCH SCULPTOR HOUDON

M. ANDRÉ MICHEL, curator at the Louvre, in Paris, recalls Houdon's visit to Washington, at Mt. Vernon, 120 years ago, which has an historical interest at this time.

Franklin was consulted by Thomas Jefferson concerning the choice of a sculptor for a proposed statue of Washington, and he recommended Houdon. The legislature of Virginia gave the order on the 22d of January, 1784, and Governor Harrison sent a portrait from which it was to be made, with an inscription written by James Madison, to be carved on the pedestal. Houdon was unwilling to make a statue except from the living model, and he found the inscription much too long. He compromised by accepting the inscription on condition of going to America. There he had difficulty in representing Washington in his uniform; the American critics of that day demanded Roman drapery, just as Canova made a nude Napoleon.

Houdon landed at Mount Vernon on the 2d of October, 1785, and was the guest of Washington "no more than a fortnight," as the latter wrote to Lafayette. During this time he took both measurements and casts for the future statue, and made an outline bust, which he exhibited at the Salon of 1787, with this description — "General Washington, done by the artist at the General's farm in Virginia."

# THE PRINCIPLES OF PHOTOGRAPHY BRIEFLY STATED

PHIL M. RILEY

## FOURTEENTH PAPER — INTERIORS BY FLASH-LIGHT

1. *Uses of Flash-lights.* — Last month I outlined quite fully the essential points in photographing interiors by daylight, but in these days of progress the worker is not entirely dependent upon old Sol's rays as formerly, and therefore the adaptability and advantages of flash-lights as illuminants ought not to be omitted in preparing this series of papers. In some respects flash-light is more desirable than daylight; it can be depended upon to shine when wanted and with the proper intensity; with it the shadows may be made to fall in any desired direction and it momentarily turns night into day. There are often rooms to be photographed where the light of day does not penetrate, or the interior may be large and but poorly lighted from one side. A full exposure for the dark side would result in overexposure near the windows, but a flash-light illuminates the dark side, giving a properly lighted exposure of the whole room, the daylight softening to quite an extent the harsh shadows which result from the use of a flash-light alone. It not infrequently happens that a room is lighted by a single window and that window must be included in the view. Of course it cannot be blocked out as was described last month, and a daylight exposure would, under ordinary circumstances, cause either underexposure of the room or overexposure of the window. Such a situation may be successfully handled by blocking out the window as suggested last month and making a flash-light exposure of the interior, after which the shutter should be closed, the screen removed from the window, and a second short exposure given for the view through the window. In this manner both interior and exterior are secured with proper exposure for both. There are times when articles of furniture or heavy hangings cast deep, unpleasant shadows in a view which would otherwise be a success. Recourse may at such times be had to the flash-light as produced by magnesium ribbon or flash sheets for local lighting. A few inches of magnesium ribbon or part of a flash sheet held with a pair of pliers over an old tin pail cover and burned behind some piece of furniture where it will be hidden from the lens will work wonders with deep shadows after a prolonged daylight exposure has been given to secure the general aspect of the room.

2. *Apparatus.* — Last month's instalment of this series gave a fair idea of the style of cameras and lenses best adapted to general interior photography, and nothing different is necessary for flash-light work. The only extras required are the materials for making the flash and some means of reflecting and diffusing it. These latter points will be taken up later, so let us first of all give our attention to the flash itself.

Three methods of making flashes present themselves, namely: flash lamps, flash cartridges, and flash sheets. Either flash sheets or flash lamps are preferable to cartridges, because there is much less danger in handling them. It

is not an easy matter to choose a lamp, for the market is full of varieties — good, bad, and indifferent — and freak inventions range in price from one dollar to several hundred. But first of all it should be understood that there are two distinct classes of lamps. First may be mentioned storage, magazine or blow-through lamps, as they are called, for use with pure magnesium *only*. These are so constructed that the required amount of powder may be put into a reservoir and at the desired moment blown through an alcohol flame, thus making a flash ranging from two or three to ten seconds duration. *Compound explosive powders should never be used in such lamps, for an accident would surely result.* The advantages of lamps using pure magnesium are the cheapness of operation, safety, latitude of exposure and reliability. For interior work and all other subjects permitting an exposure up to ten seconds they are excellent. For groups, portraiture, and other subjects requiring more rapid exposures, compound flash powders of a more explosive nature must be used and an open lamp which does not confine the powder is required for safety. Mere contact with heat only is necessary for firing the entire charge instantaneously, and an alcohol flame and electricity are both considerably employed for the purpose. Portraiture by flash-light is a broad subject, worthy of a separate paper, and I shall, therefore, speak only of interior work with storage lamps for pure magnesium and with flash sheets. In selecting a lamp make sure that the combustion is complete and that the full amount of powder may be blown through in a very short space of time. For the advanced photographer who desires to make a specialty of flash-light work and desires a lamp adapted to both portraiture and interiors, there are several excellent outfits now on the market, having lamps mounted on a rigid folding standard so that the flash may be made at any desired height. These flash-light machines are also fitted with a diffusing screen, which may be adjusted in any position, either vertically or horizontally or at any angle, thus making it possible to secure a variety of pleasing lightings in portraiture as well as evenly diffused illumination for interior views. These outfits are a trifle expensive, however, and any ingenious amateur who is mechanically inclined can make an equipment which is quite as satisfactory to be used in conjunction with any lamp he may happen to own, or, if preferred, a machinist will make it at small cost.

The important qualities to be secured are sufficient reflection and diffusion of the flash to give a penetrating, yet evenly distributed illumination, and so something more than the lamp itself is needed. The amateur who makes a flash-light but seldom, can probably make some temporary arrangements, which will be satisfactory, but the worker who takes the subject more seriously will feel repaid for constructing a machine similar to the one described here.

3. *A Diffusing Screen Outfit.* — For making such a machine the first requisite is a folding metal stand such as is used as a support for music racks and phonograph horns, and which can be bought for about $1.50. The base only is required and consists of a hollow tube in which a sliding rod may be adjusted to any desired height and held there by means of a thumb screw.

FREDERIC BONNET, JR. WINTER

LOUIS FABIAN BACHRACH PORTRAIT OF MY FATHER

Dispensing with the sliding rod furnished with the stand, the worker is to have constructed a jointed rod better adapted to the purpose in view. Three circular steel rods 30 inches long are required of such a size as to slide within the hollow tube of the base. Now have pieces of brass tubing 4 inches long shrunk onto one end of two of the rods, so that they will extend beyond the end of the rods 2 inches, forming sockets which enable the two rods to be fitted together after the idea of a jointed fish pole.

Having fitted two rods in this way, they may be jointed together and inserted in the hollow tube of the base, forming the standard of the machine. Find the center of the third rod, and at that point have brazed at right angles another steel rod of the same diameter and three inches long. The three inch rod, when inserted in the upper socket of the standard, causes that standard to assume the shape of a letter T, which may be varied in height as desired. But before placing this rod in position, have two holes drilled through it vertically, one at each end, and as near the ends as possible. Each of these holes should be just the right size to admit a small screw hook, the screw part of which should be cut off, the smooth, straight end passed through each hole

DWIGHT A. DAVIS REVERY

and headed down on the upper side. From these hooks are to be suspended the reflecting and diffusing screens.

Next, the screens must be made. For the reflector 1½ yards of ordinary white curtain cloth 42 inches wide will be needed. Also get four curtain sticks 44 inches long, such as are always used at the bottom of curtains, and ten tiny screw eyes. The diffusing screen is to be made from 1½ yards of the best quality of tracing cloth 42 inches wide. This can be bought of any dealer in artist's or draftman's supplies, and should be sufficiently transparent to permit reading a newspaper placed under it. At this point you will require help from your sister, or, if necessary, from some other fellow's sister. Hems must be made on a sewing machine across both ends of the tracing and curtain cloth, through which the four sticks are to be passed. Put a screw eye in both ends of each stick and one at the middle of the top stick of each screen. Hook these screw eyes over the hooks on the T-shaped top of the standard, and the two screens are suspended in proper position. To prevent the curtains from swinging together, four ⅛ inch rods 31 inches long will be needed. Both ends of these should be bent at right angles about ⅝ of an inch from the ends, which should be passed through

H. P. FAIRFIELD THE SINGING LESSON

the screw eyes at the ends of the curtain sticks. This completes the machine with the exception of the lamp itself, which should be attached to the standard in such a way that it may be fastened to it at any desired height by means of a thumb screw. Explicit directions cannot be given, as various lamps differ so widely; but a little ingenuity on the part of the photographer will supply a method.

4. *Using the Outfit.* — With the diffusing screen outfit ready, the camera may be set up at the proper position and, if necessary, focused on a lighted candle placed at various points in the view. The screen and flash lamp should be placed slightly above, about two feet behind and three or four feet to the right or left of the camera, the distance depending upon the angle of light and the direction of the shadows desired. It is not necessary to extinguish the gas or electric lamps ordinarily used for lighting the room, for the few seconds' exposure of the plate just before the flash will assist materially in the general illumination, but the shutter should be closed immediately after the flash, or the smoke will fog the plate. Careful note should be taken that the flash is not reflected in framed pictures or mirrors.

HARRY N. DAVIS — BY THE OLD FISH WHARVES

5. *Strength of the Flash.* — As the amount of powder to be used depends upon the size of the interior and the character of its furnishings as well as the lens aperture, it is practically impossible to give explicit instructions. With lamps using pure magnesium the following table will give some approximate amounts which may be varied to suit individual circumstances: —

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| For | 10 | feet | distance | and | light | walls | and | hangings | use 1 teaspoonful |
| " | 10 | " | " | " | dark | " | " | " | " 1½ teaspoonfuls |
| " | 15 | " | " | " | light | " | " | " | " 2 " |
| " | 15 | " | " | " | dark | " | " | " | " 2½ " |
| " | 20 | " | " | " | light | " | " | " | " 3 " |
| " | 20 | " | " | " | dark | " | " | " | " 3½ " |
| " | 25 | " | " | " | light | " | " | " | " 4 " |
| " | 25 | " | " | " | dark | " | " | " | " 5 " |

6. *Flash Sheets.* — Eastman's Flash Sheets furnish a simple and effectual method of producing flashes and, as they burn slowly compared with flash powder, they are much safer. For the average amateur there is probably nothing better on the market. The worker will find it so easy a matter to apply the use of these sheets to the diffusing screen outfit described above that it is unnecessary to go into details. Each package of the sheets contains explicit directions and an approximate idea of the number required under various conditions.

HENRY HAVELOCK PIERCE
MISS ALICE ROOSEVELT

## 'TWIXT RIVER AND SEA

AGNES LOCKHART HUGHES

'Twixt river and sea, a path of sand
  Stretched like a golden bar—
And the surf beat in with its ceaseless moan—
  Bearing echoes from worlds afar.
Then the great wild sea in impassioned tones
  Wooed the river of sapphire hue,
Bringing her gifts from the ocean's depths,
  And pearls for her gown of blue.
Oh! the path of sand,—where is it now,
  While the river and sea embrace?
Ah me! There are only the laughing waves,
  With their caps of jewels and lace.
But, wait—for the tide is ebbing fast,
  'Tis parting the river and sea,
While only a faint, dim line remains
  'Twixt time and eternity!
With a sobbing voice, the great sea cries,
  "Good-by!" to the river fair.
Then I looked again when the tide had turned—
  And the sand-bar still was there.

# EDITORIAL DEPARTMENT

Unless the dauntless soul take part
In all their toil, there is no art,
No life, no wizardry, no power.
—BLISS CARMAN.

## ART AND RELIGION

WE have always maintained that art, like religion, can only be rightly discerned by the spiritual minded. The essence of art, that without which it cannot be what it is, is only of the spirit. In a photographic masterpiece it is not the surface of the picture but the spirit of the artist who stands behind it that you must seek and find, to rightly appreciate and interpret the picture.

"Back of the sound broods the silence, back of the gift stands the giving;
Back of the canvas that throbs, the painter is hinted and hidden.
Into the statue that breathes the soul of the sculptor is bidden.
Great are the symbols of being, but that which is symboled is greater."

Beauty of music does not exist for the deaf, nor beauty of painting for the blind. Spontaneous appreciation of beauty in art can only come to those who have all their faculties, and a deep spiritual insight is not the least of them.

We are so engrossed in material things that the life of the spirit is clogged, diminished, and sometimes destroyed. Sensuality, gluttony, and a life of license suppresses the spirit, and the soul does not blossom. Harmony as expressed in color, form, and sound, is lost, when a man's soul is gone.

Beauty is born of the spirit, as happiness is born of life, because the spirit is keenly sensitive to and is pained by lack of harmony, just as life is deadened by pain.

## RELIGION OF THE BEAUTIFUL

THIS religion of the beautiful is the worship of beauty, which, in its turn, is only a manifestation of the great Creator of the Universe. Many a sacrifice has been made since time began to Art, the expression of beauty, and to her mother Nature. The saints in this religion are the great artists of the world, the masters of poetry, music, painting, and sculpture. Their lives are beacon lights that form an ideal for us to emulate. Into this galaxy of greatness the photographer may one day come. His prayerbook is his camera. His pictures are his prayers. They tell of his love of art, in form and color and the sweep of beautiful lines. Through them he can praise, with the touch of genius, the God of Nature and all His works. This is the religion of the beautiful.

## EXPRESSION RIGHT AND WRONG

THE divine gift of expression or the power to create beauty in pictures is second only to the power to feel, appreciate, and see beauty in the pictures of others. Yet there is a right and wrong expression which it is well to understand. The sensualist expresses himself through his senses. Only the animal side of his nature appears, because he believes only in what he can see, hear, taste, smell and feel. His life of license represses the life of the spirit, and *this is what it is to lose one's soul.* The intellectual man expresses himself through his mind and spirit. All that is highest and best in him is brought out by intelligent thought and his soul waxes strong through the exercise of its faculties. *This is what it is to save one's soul.*

This question of expression through the spirit or through the senses, through the soul or through the body, has been the pivotal point of all philosophies and the inspiration of all religions from the beginning of the world. Thoughtful men, for ages, have realized these truths and have taught the world, by precept and example, to forsake the life of the senses and devote themselves to the life of the spirit. Ascetics in religion fast and suffer, repress the faculties of the body that the spirit might have an opportunity to exercise and grow. St. Francis of Assisi, the artist saint of the Middle Ages, was a type of this form of expression. Probably between these two extremes — the license of the sensualist and the radical repression of the religious enthusiast — lies the truth, for most of us. There is, in many an artist photographer to-day, a hunger for beauty, just as there is a physical hunger. Beauty speaks to his spirit through his senses. If he could only reproduce through his camera and with the touch of genius what he feels, he would be supremely happy. Yet this form of life expression is born only of the spirit. And when you long to make masterpieces, not for the fame that might come, nor for wealth, but simply for the joy of doing it, you have the key that will loosen the fetters that bind you to mediocrity, and will give to your soul, maybe, the wings of genius.

## REMOVAL NOTICE

WE desire to announce the removal of the PHOTO ERA offices to larger and more commodious quarters at 383 Boylston Street, Boston, Mass. Owing to the increased demands made upon us by our constantly growing business, we were forced to look for additional space. With our three publications — to wit: PHOTO ERA, the *American Journal of Photography*, the *Practical Photographer*, and *Art in Photography* — we are now located, as stated above, at 383 Boylston Street, in the heart of the new and fashionable Back Bay district of Boston, where we will be pleased to meet our patrons and subscribers at all times. The added facilities of our new offices and their central location will increase our usefulness. The new PHOTO ERA in its new home will continue to shine for all, especially those in the photographic world — a world that now seems fair and good, all sunshine, love and cheerfulness.

## SPENCER B. HORD

THE retirement of Spencer B. Hord from the editorial chair of the *Times*, which he has filled so ably during the past three years, is a serious loss to photographic journalism. The ranks are fast thinning out; but our loss is the gain of the Eastman Kodak Co., which has already absorbed many of the brightest minds in the photographic world hereabouts.

Though a comparative new-comer to the field of journalism, he has quietly and without any flourish of trumpets brought the moribund *Times* up to be a dividend-paying proposition. The magnitude of this achievement can only be rightly appreciated by those who have struggled with fate along these same lines and have failed. We extend our heartiest congratulations to Brother Hord, and best wishes for his future success.

In fancy we can hear the former editor addressing the rich directors of the *Times* at a stockholder's meeting in his most dulcet tones,

> I want to go a-fishing, the fever's in my blood;
> And memories of other days roll o'er me in a flood:
> The meadow-lark's enticing call comes to me o'er the fields,
> And to its invitation my willing spirit yields.
>
> I want to go a-fishing — come, comrade, let us go;
> Let's cast aside the cares of life that weigh upon us so,
> And hie us to the woodland where the silver waters swish,
> And there we'll roam together, and rest, and dream, and fish.

Mr. Hord, as intimated above, has gone to Rochester to fish with L. B. Jones and the Eastman Kodak Co.

## OUR FRONTISPIECE

THROUGH the courtesy of Mr. Frederic W. Snow of Boston, we present our readers, this month, with a remarkable picture as a frontispiece. The copy is from a photograph of Gilbert Stuart's famous painting of Washington, and was taken by the late Josiah Johnson Hawes, professional photographer of Boston, over fifty years ago. Mr. Snow vouches for the authenticity and age of the print, as it was a gift to him from Mr. Hawes some thirty years ago. And his statement is confirmed by Dr. E. S. Hawes of Brooklyn, the photographer's only son, who shows a fine print from the same negative on a silk handkerchief also made fifty years ago. As an example of the durability of the photographic print it is of priceless value to photographers and as a sample of the permanence of the early photographic processes it would be hard to beat. Rivaling even the carbon process, the tones and color values of this wonderful silver print, after the lapse of half a century, are in as excellent a state of preservation as the day it was made. And it is likely this print will endure for years to come, as long as the texture of the silk and the paper will hold together.

Compared with prints from negatives produced in accordance with the most approved up-to-date scientific methods, it is a marvel of technical achievement. Not only is the lens work without a flaw, *i.e.*, the picture is satisfactory as to linear accuracy, but the modeling of the face, the tonal gradations, the color values and even the texture of the canvas are all reproduced with extraordinary fidelity. In the combination of these essentials, none of the numerous reproductions, whether by engraving, etching, photography and even printing, is as satisfactory as this old-time photographic print by Josiah Hawes.

In the face of these facts, the question naturally arises wherein the color-sensitive plate, which is a comparatively recent discovery, is superior to the old-fashioned and discarded wet-plate process.

## IMPORTANT NOTICE

BEGINNING with March 1st, our bi-monthly, *Art in Photography*, will be issued as a quarterly publication. More and better pictures will be given, text matter will be introduced and the subscription price will be reduced to $5.00 a year. It will be published as the official organ of the American Federation of Photographic Clubs.

## NEW VARIABLE STARS

FROM the Harvard College Observatory comes Circular 107, which announces the discovery of twenty-five new variable stars. A recent examination, by Miss Henrietta S. Leavitt, of plates taken with the 24-inch Bruce Telescope, has led to the discovery of a number of new variable stars. The six variables in Orion were discovered during the selection of comparison stars for the pair of interesting variables, H 797 and H 798, near *sigma* Orionis. The discovery of the three variables in Virgo was made by superposing plates in the manner described in Circular 79. Six excellent plates, having exposures of about two hours, were used. The approximate centers of these plates are R. A. = $13^h$ $54^m$, Dec. = — 10°.4 (1900). The known variable, RR Virginis, was rediscovered at the same time. The sixteen variables in Cygnus are in the region of the great spiral nebula, whose most conspicuous portions are catalogued as N. G. C. 6960 and N. G. C. 6992. Together with the known variable UX Cygni, they were found by superposing five plates having exposures of from two to four hours. Of these, three have centers near R. A. = $20^h$ $45^m$, Dec. = + 30°.5, while those of the other two are near R. A. = $20^h$ $50^m$, Dec. = + 32°.5. All the plates are of extremely fine quality, and probably the images of at least 200,000 stars were clearly seen and compared.

The positions of the new variables in the Small Magellanic Cloud, as announced in Circular 96, have been measured, and observations of their brightness are in progress, with a view to determining their light curves. New variables are occasionally found in the course of this study, the number discovered in this region up to the present time being 970. A series of excellent plates covering the Large Magellanic Cloud has been received.

# THE ROUND ROBIN GUILD

*Conducted by Elizabeth Flint Wade. Specially designed for the amateur photographer and the beginner. Membership may be obtained by sending name and address to the* PHOTO ERA.

PROCRUSTES was a man of one idea. He had certain rules which he thought all men should conform to, and if they did not, they should be made to do so. For instance, when travelers stopped with him over night, he used to put them to sleep in his bed. If they were too short for the bed, he stretched them out until they fitted it, and if they were too long, he solved the problem by promptly lopping off the redundant parts.

Procrustes' bed has passed into a proverb, and, judging by examples which come under our observation now and then, one might believe that he had followers even in this age.

Looking over a collection of prints a short time ago, I was reminded of Procrustes' methods, for though there were some very excellent pictures, — far above the medium, — every picture was printed on the same kind of paper and mounted in the same way; landscapes, marines, portraits, etc.

The paper used was a gaslight paper, and instead of selecting from the many kinds of paper which come under the head of gaslight papers, those adapted to the different classes of negatives, one brand had been chosen and used for all of the prints. And there was such a lot of them, too.

But suppose one does use gaslight paper exclusively, there is no reason why he should not select the paper best adapted to the quality of his negative. The gaslight papers are classified as Regular and Special, the Regular being a paper that requires a longer exposure and develops very quickly, while the Special paper prints very quickly and develops slowly.

Now suppose one has negatives with fine detail, which he desires to have brought out in the print. Then the paper best adapted to such a negative is the glossy gaslight paper which reproduces the finest detail faithfully. It is an excellent paper for pictures for reproduction.

For a negative that has little contrast the carbon gaslight will give the best results, and is intended specially for thin and undertimed negatives. The surface of the paper is smooth and without gloss. If one has thin negatives where broad effects are desired, the rough carbon will be found best for the purpose. The paper is rather rough, and of very pleasing quality.

The Special papers are designed to produce soft results from harsh negatives, that is, from negatives having too much contrast. Special carbon will be found just the paper for negatives of good contrast, but not too pronounced. The Special portrait is a fine paper for negatives with strong high lights and deep shadows. It equalizes the contrast and makes a pleasing print. This paper is made specially for portrait work, but will be found a very excellent paper for landscape work.

There are two grades of rough paper, one being of ordinary weight and the other very heavy. The rough gaslight will be found to be just the thing for large negatives, where one does not care for fine detail in the print. One should never use rough paper for small negatives. The result is never agreeable. The heavy, rough paper is specially good for sketchy negatives, and the weight is such that no mount is required. The print may be made through a cut-out, thus insuring an even edge all round the picture and with a good margin one has the effect of a mounted picture.

In choosing a paper for a print, judge your negative by its lack of or its overplus of contrast.

The developer which gives the best general satisfaction is the metol-hydroquinone. The paper makers give the following formula: —

| | |
|---|---|
| Water | 20 ounces |
| Metol | 14 grains |
| Sulphite of sodium | 1 ounce |
| Hydroquinone | 60 grains |
| Carbonate of sodium, desiccated | 400 grains |

To develop, add one drop of potassium bromide, — ten per cent solution, — to each ounce of the developer.

This formula is for the regular paper. If Special is used, take an ounce of water to every ounce of the developer.

In regard to the printing, an ordinary kerosene lamp of good power will be found more satisfactory than a gas jet. Do not hold the printing frame in the hand during the printing process. A simple arrangement is to place a wooden box, — a starch box is about the right size, — eight inches away from the lamp, with the lamp so placed that the flame comes two inches above the level of the box. Set the printing frame on the box, and time the exposure by a watch hung near so that one may note the time without turning about. It requires from twenty seconds to a minute and a half to print, the time being regulated by the density of the negative and the kind of paper used.

When one has a quantity of prints to make, it simplifies matters if the negatives are selected and each class put by itself. Next, the papers are made ready, counting out the number of sheets required and adding a few for possible failures. To hasten the process one can print and develop at one and the same time. Having the box arranged as described and the watch within direct range of the vision, place a screen on the other side of the lamp and within its shadow set the tray of developer. While one picture is printing another is developing, and by glancing at the watch, one can remove the frame at the critical moment, lay it face down, and finish the developing. When the developed print is taken from the tray, it must be thoroughly washed, for in the washing out of the developer depends the unspotted print. Another frame is made ready, and while the printing is going on, the print just made is developed, and so throughout the printing.

The printing and developing of prints at once has several advantages. One sees at a glance if the print is of the right quality, and, if not, another, a duplicate, can be made then and there. If the printing is done first and the developing afterward, if there are defective prints, it means the hunting up of those particular negatives and additional printing. Another advantage is that prints developed immediately are far better than when developing is delayed for several days.

Gaslight papers are a great boon to the amateur. They make him independent of sunlight, and for many kinds of work are to be preferred to the printing-out papers.

Where time is at a premium, — and isn't it with all of us? — gaslight papers make it possible for busy people to pursue the avocation of photography, — especially the printing, — with despatch.

### PHOTOGRAPHIC SKETCHES

At a recent exhibition of photographs some very clever pictures were shown, which looked as if they were sketches instead of photographs, or made by any photographic process. The principal lines were bold, but the detail was suggested rather than portrayed, and the work was well done, showing that the clever amateur was an artist as well as a photographer. The pictures elicited a great deal of comment, and the "how" was demanded with such persistency, that the secret, — which was no secret at all, — was divulged. The prints had been made in the ordinary way and then converted into line drawings, by carefully going over the portions of the picture which were to be retained, with a fine pen and with water-proof ink. The print was then subjected to a reducing process which eliminated all of the detail, leaving simply the lines made by the ink.

Any good reducing solution will remove the coloring of the picture, perhaps the best for this purpose being ferricyanide of potassium. Make the solution of 10 oz. of water; hyposulphite of soda, 2 oz.; and ferricyanide of potassium, 25 grains.

Another reducer is made of water, 10 oz.; bichloride of mercury, 100 grains; and salt, 40 grains. After the picture has been reduced, rinse in hypo solution for two or three minutes (1 oz. hypo to 16 of water), then wash thoroughly.

In using either ferricyanide of potassium or bichloride of mercury remember that both are extremely poisonous.

### TWENTIETH CENTURY MAGIC

THE heavens above us and the earth beneath us have been compelled to yield up their secrets to that great wonder-working power, — photography.

Photography reveals to the searcher of the heavens what was before invisible even with the strongest telescope. For example: an astronomer without the aid of photography made a chart of the group of the Pleiades. The work occupied him six years, and his chart showed six hundred stars. A camera turned toward this same cluster took two hours to make an exposure, and the sensitive plate showed in this self-same group no less than two thousand, two hundred stars, — sixteen hundred more than the astronomer was able to discover in six years, though using for his work a giant refractor.

The explanation of this is that the eye sees at once all that it is capable of seeing, and a persistent effort to see beyond the vision tires the eye and lessens its sensitiveness to impressions. The photographic plate knows no fatigue. It receives the light and allows it to pile up or accumulate. If the light of a distant star does not affect the sensitive plate at once it does so after a certain length of time,— it may be minutes and it may be hours, — and in time the image of the star will impress itself on the plate. Sometimes an exposure is made of a certain portion of the heavens on the same plate for several nights in succession.

The camera is not useful alone in discovering new stars, but also the presence of elements, for it was through photography that Professor Draper discovered oxygen in the sun.

Cable messages are recorded by photography. A fine wire is stretched vertically between the poles of an electro magnet. The currents of the cable passing through this wire cause it to be deflected now toward the north and now toward the south pole of the magnet, according to the directions of the current. The shadow of this wire projected across a narrow slit falls as a black spot on a strip of sensitive paper. The paper travels at a fixed rate and, after the message has been received, the strip of paper on which has been impressed the picture of the moving shadow is developed and becomes the handwriting of the instrument.

The curvature of the earth is shown by means of photography. The great peak of Teneriffe, which rises to a height of some thirteen thousand feet above the level of the ocean and almost directly from its surface, makes a magnificent viewpoint for scientific observations. Professor Porter of London, England, has made many observations from this lofty peak, and exhibits several photographs taken from the apex, each of which shows plainly the curvature of the horizon line.

The plutonic exhibits of Mother Earth have been made the subject of scientific observation, the camera being the record maker. One scientist has himself made twenty-five or more pictures of volcanoes in eruption, besides many pictures of lava, cataracts, etc.

The photographic rifle is an ingenious toy. A tiny camera is affixed to the barrel and, when a shot is fired, the action exposes a plate. When this is developed, the hunter knows whether or not the animal or bird at which he fired was hit. Another camera gun, which commends itself to the Humane Society, is built not for warfare nor the destruction of life, but as a means for solving the problem of aerial flight of birds.

Photography is used to obtain the correct measurement of things which without its aid could not well be accurately determined. By means of photography the height obtained by balloons is ascertained; the force, direction, and velocity of the wind, and of all kinds of projectiles; the swiftness of river currents, and the length, height, and duration of ocean waves; and the speed of all kinds of wheels used in machinery, including the fly-wheel, are measured by photography; and even the speed of the lightning flash is calculated by means of a vibrating lens and the multiple image which it makes on the sensitive plate.

Explorers use cameras extensively and make "fore and aft" pictures of their routes, so that they have a complete pictorial record of their journeys. Engineers in virgin country make hundreds of pictures of the wilderness they are breaking a path through, and thus the next comer has a broad and well-marked pathway, instead of the "blazed trail" of the hunter.

One might fill pages with the wonder-working powers of the camera, which of all the instruments brought into use during the last century holds the first rank as the most useful and the one that could least be spared.

### ROUND ROBIN GUILD COMPETITIONS

First prize: Value $10.00.
Second prize: Value $5.00.
Third prize: Value $2.50.

Prizes may be chosen by the winner, and will be awarded in photographic books or magazines published or advertised by us; in enlargements, art portfolios of photogravures, mounts, or other photographic materials advertised by us; or, if preferred, we will send any article of a photographic or art nature which can be bought in Boston for the amount of the prize won.

### RULES

Membership in THE ROUND ROBIN GUILD, with all its benefits, — among which the correspondence privilege probably stands first, — is free to all, and we invite every photographer to become a member. Entrance in the monthly competitions is limited to subscribers to PHOTO ERA.

### SUBJECTS FOR COMPETITION

January. — "Winter Views." Closes February. 28.

February. — "Reflections." Closes March 31.

March. — "Trades." Pictures entered in this competition should be illustrative of the various employments, such as blacksmithing, shoemaking, tailoring, and the like. Closes April 30.

April. — "Portraiture." Closes May 31.

May. — "Mother and Child Pictures.' Closes June 30.

June. — "Garden Scenes." Closes July 31.

### SYNDICATING PHOTOGRAPHS

A LITERARY syndicate is a company that buys manuscripts and then sells the same article to several different papers. The price paid is less than that paid for the original article, but by selling it to several different papers the syndicate makes money in the end, the aggregate amounting to a good round sum.

If any amateur has a collection of fine negatives he may syndicate prints from them by making up sets of perhaps half a dozen in a set and sending these sets to say ten or twelve papers published in as many different States or in cities widely separated. In sending the pictures one states that they are offered to other papers, giving the names of same, and that they must not be published before a certain date, which he mentions in his letter. The pictures must all be sent out at one and the same time, so that they may be used about the same date. If in addition to the pictures the amateur can add descriptive matter, his pictures will bring more money, and his copy need not necessarily be fine writing. He may simply give an explanation or description of the pictures, enough to furnish one of the staff editors basis for an article of which the pictures are the principal feature.

If one has been fortunate enough to make good nature studies of wild animals, he will find no difficulty in disposing of his prints to either papers or magazines. In these days we seem to desire to get closer and closer to nature and to learn all the secrets which for centuries she has guarded so carefully.

"The ants are a people not strong, yet they prepare their meat in the summer;

"The conies are but a feeble folk, yet make they their houses in the rocks;

"The locusts have no king, yet go they forth all of them by bands;

"The spider taketh hold with her hands, and is in king's palaces."

Thus many centuries ago said the wise man, and to-day we are just beginning the lessons in the science of which he was a past master.

ANSWERS TO CORRESPONDENTS

CARLOS F. — Your plates are evidently stained with hypo. Hypo that has been used repeatedly becomes charged with the unused silver salts which oxidize, discoloring the hypo solution and staining the negative which has been fixed in it. Hypo is so very cheap that it is wisdom to use fresh hypo solution, rather than to risk spoiling a negative by fixing in dirty hypo.

S. D. FENTON. — Yes; you can use the lens with which you made the negative to make an enlargement from the same. You will find in the PHOTO ERA for February, 1902, an article on enlargements. A copy will be sent you on receipt of 15 cents. We shall during the year give an article on making enlargements for the benefit of our new members, who have not access to the back numbers of the magazine.

HELEN F. — You will find a panorama camera a very useful addition to your out-of-door camera outfit. The trouble with the beginner in using this style of camera is that one forgets that the angle is very wide and often secures two pictures on one plate; that is, he has two or more conspicuous objects at different points, and instead of seeing the pictures as a whole, the observer must look first at one point and then at the other. It is a trick of the eyes to see first the prominent object while the rest of the picture falls naturally into line. So be careful in making panorama pictures to have but one prominent object, and that well to one side of the center, and to have something at the extreme other side, like distant trees perhaps, to preserve the balance or symmetry of the picture.

MORRIS H. P. — Yes, indeed; you can easily learn to sensitize your own papers. The one point to be observed is, that the solution is applied quickly and evenly. If applied with a brush, use a wide one made of camel's hair, and apply the solution first one way of the paper, then the other. If floated on the solution, put the paper in face down, turn it at once, and if there are air-bubbles, break them with the tip of the finger, turn again in the solution, and float for two minutes, drain, and pin up to dry. One had better begin with blue-prints first, as both solution and paper are the cheapest used.

KATE M. — You will find the following solution of acetate of soda and gold an excellent one for Aristo paper or for plain silver paper. Chloride of gold, 1 grain; acetate of soda, 30 grains; water, 10 oz. Dissolve the gold in 2 oz. of water and neutralize with a few drops of chalk solution. Dissolve the soda in the remaining 8 oz. of water, and add the gold solution. This bath keeps for a long time and works best when it is old. It ought to stand at least forty-eight hours after mixing before using. See answer to F. D. S. in regard to making gold solution.

F. D. S. — To make up a gold solution, take 15 grains of chloride of gold and sodium and dissolve in $7\frac{1}{2}$ oz. of water. This is a stock solution, and is in the proportion of 2 grains of gold to each ounce of water. When making up a solution that calls for 1 grain of gold, use $\frac{1}{2}$ oz. of the stock solution and $\frac{1}{2}$ oz. less of water than the formula calls for; if 2 grains, then use 1 oz., etc.

A. H. R. — You will find hydroquinone with metol the most satisfactory developer for gaslight papers. It gives clear, soft blacks, and does not discolor

the paper. Use plenty of acid hypo for fixing, and move the prints in the bath so as to give free access to the entire surface of the prints.

FREDERICK O. L. — Your underexposed negative was doubtless due to the fact that you used too small a diaphragm. The size of the diaphragm used affects the rapidity of the lens very materially. The smaller the diaphragm the longer must be the exposure of the plate.

CLARA T. — Carbon and platinum are both considered permanent prints, the carbon being practically so, and the platinotype quite so when properly developed and fixed. One must take care in making platinotypes that enough acid is used to clear the whites, and that the prints are well washed to remove all traces of the acid. Such precaution will result in permanent prints.

ROBERT WARNER. — In developing Velox prints more satisfactory results may be obtained by using a little slower developer than that recommended in the directions. With a slower developer one does not run the risk of getting woolly blacks with no detail.

G. H. E. — To make a saturated solution dissolve as much of the chemical salt in the water as can be taken up. Use enough so that when cleared by settling, there will be a deposit of the salt at the bottom of the bottle. The clear liquid is the saturated solution.

FLORA C. — If you will refer to the December PHOTO ERA for 1902, you will find a number of suggestions for making calendars. In making calendars after the first of the year, — that is, if the calendar is designed for a friend, — it is a pretty idea to have the date begin with the friend's birthday and end with it, thus making a year from birthday to birthday, instead of from the first of January to first of following January.

L. N. — Use the blue-print solution for coating porcelain plates. It is very easily done, and the prints are made in the same way as a blue-print. To time the length of exposure, make first a print on blue-print paper, and expose the porcelain plate under the negative the length of time required to make a good blue-print on the paper. Formulas for making blue-prints will be found in the back numbers of the PHOTO ERA, as the directions have been given several times.

CORA D. — The trouble with your self-toned platinum prints is doubtless due to too careless handling. Do not touch the fingers to the surface of the print and lift print by the extreme edges. A solution of acetic acid will remove spots from the prints.

GRACE L. H. — See the April number of the PHOTO ERA for 1905 for suggestions on portrait making with the camera. You will find that if you do not use so sharp a focus as you have in the prints enclosed that your work will be more artistic. The proper way to secure this effect is to focus first sharply, then turn the lens out just a trifle; not enough to blur, but just enough to blend the shadows.

CARL W. — Yes; you could make a focusing glass which would answer very well. Take two spoiled plates, sprinkle one with fine emery and moisten it with water. Rub this glass down with the other, using a circular motion. If not ground enough, renew the emery and grind again.

MISS F. M. ROBERTS. — No; it is not necessary to be a subscriber to the PHOTO ERA in order to be eligible for membership in the Round Robin Guild. It is, however, a great advantage to the amateur to have the PHOTO ERA regularly, as one is thus kept in touch with the work and has an opportunity to see what pictures take prizes. Any amateur may become a member of the Round Robin Guild by sending name and address to the Guild secretary.

MORRIS FREDERICK. — To turn blue-prints to brown, wash and dry the print, then place in a solution of ammonia made of 1½ oz. of stronger ammonia and 12 oz. of water until it has nearly lost its color. Rinse and place in a solution of tannic acid 154 grains and water 7½ oz. Leave in this bath until the required color is secured, then wash thoroughly and dry.

TO TEST WATER

THE quality of water used in making photographic solutions is a matter of much more importance than is generally recognized, for many troubles in negative and print making may be traced to the use of impure water. Distilled water is preferable under all circumstances and can be obtained from a druggist at a cost not worthy of consideration.

Practically speaking, all tap or well water contains some impurities. It is of importance for the practical man to know what these are, because some common impurities may be disregarded during many of our ordinary photographic processes, and the water when boiled, allowed to cool and filter, is quite satisfactory.

Other impurities may give rise to defects in our negatives or prints. In making the following tests, all the reagents, *i.e.*, testing solutions, should be prepared with the purest chemicals dissolved in distilled water, otherwise we might be led to suppose the presence of an impurity in the water supply which was really in the materials used in testing. The test should be made by adding a few drops of the reagent to some of the water contained in a perfectly clean beaker or tumbler. The mixture should then be stirred with a glass rod and examined by looking through it at a piece of clean white paper in daylight. Each test is made with a fresh lot of water.

(1) Add ten or twenty drops of a ten per cent solution of silver nitrate. A white cloudiness or milkiness indicates the presence of one or more chlorides. When these are present the water is not suitable for making solutions containing silver nitrate, *e.g.*, a wet collodion sensitizing bath, etc.

(2) Add a few drops of barium chloride solution. A white precipitate or milkiness indicates the presence of sulphates, usually of calcium or magnesium. The latter has a softening and dissolving action on gelatine. But usually the quantity present is so small that this action may be disregarded.

(3) Take a large-sized test-tube. Half fill with tap water. Acidify with dilute sulphuric acid. Tilt the tube at about forty-five degrees. Then slowly pour down the sloping side of the tube a freshly made saturated solution of iron protosulphate (ferrous-sulphate). Where the two solutions are in contact in the tube a dark ring or layer is formed when a nitrate is present.

(4) Again, take half a test-tube of the tap water and acidify with sulphuric acid. Then add two or three drops of five per cent solution of potassium iodide. Now add a small bit of white starch, no larger than a small pea. Crush with the glass rod and mix well in the water. Now bring the solution slowly to the boiling point. A blue coloration points to the presence of a nitrite.

Nitrates and nitrites lead one to suspect the presence of organic matter, which is never desirable in water for photographic purposes.

(5) Take half a tumbler of water and acidify with hydrochloric acid. Pass sulphuretted hydrogen gas into the solution. A darkening or discoloration points to lead, copper, mercury, or tin. These impurities may be derived from the pipes or storage cisterns, or may be in the well. Their presence is undesirable, especially for toning and similar delicate operations.

(6) Take a fresh lot of water and acidify with nitric acid, then add a little potassium or ammonium sulphocyanide solution. A red

coloration points to the presence of iron. This, again, is an undesirable impurity.

(7) To a tumbler full of the water add a solution of ammonium (or potassium) oxalate. A milkiness, or white precipitate, indicates the probable presence of calcium (lime carbonate, etc.).

(8) To a pint or so of the water add silver nitrate slowly until any more precipitate ceases to be formed. Stir well and allow the precipitate to settle. Carefully decant or filter off the clear part into a white glass bottle and add a few more drops of silver nitrate solution which should now produce no visible change. Set the bottle where it will be exposed to strong daylight. If the solution darkens on exposure to light, organic matter may be suspected.

(9) Take a fresh quantity of water, add a few drops of sulphuric acid, stir well and then enough potassium permanganate to show a very pale pink color. If this color changes to yellow or brown, or goes markedly lighter, organic matter is probably present.

(10) Prepare a small quantity of Nessler's test as follows: to 2½ oz. water add 60 grains of mercuric chloride finely powdered, and heat gently. Now, slowly add a ten per cent solution of potassium iodide until the precipitate first formed is redissolved on shaking. Prepare a one-in-eight solution of caustic potash, *i.e.*, 3 drams potash in 3 oz. water. Mix equal quantities of this mercuric iodide and caustic potash solutions. Shake and filter for use. A few drops of Nessler's test added to an ounce or so of water will show a yellow or brown coloration if ammonia be present.

Water from wells or springs in the vicinity of farm yards, burial grounds, gardens, etc., is often contaminated with organic matter or ammonia.

### DRYING CARBON TISSUE

It is a well-known fact that a plate immersed for a few minutes in alcohol after washing will dry in about twenty minutes. Only a few days ago a fellow-worker told us that he used the same method in drying carbon tissue with excellent results, especially in damp weather, when the process is usually a source of much trouble and inconvenience. It is certainly a fact that under this treatment the tissue is less inclined to curl, and, because of faster drying, the prints will not lose contrast, as is sometimes the case.

### DEVELOPER FOR LINE DRAWINGS

Many photographers occasionally desire to copy line drawings in black and white, and in this class of work a developer which will give a negative productive of decided soot and whitewash qualities is desirable. An excellent formula is as follows: —

| | |
|---|---|
| Hydroquinone | 28 grains |
| Sodium sulphite | 280 " |
| Formalin | 32 " |
| Water | 4 ounces |

### GLYCERINE TO PREVENT CURLING OF PRINTS

Curling of bromide and gaslight prints may be obviated in a large measure by the use of a glycerine solution. Wash the prints as usual after fixing and then immerse them for five minutes in a solution containing ¼ oz. of glycerine to 16 oz. of water, then dry as usual. The solution may be used several times.

### RESTORING FOGGED PLATES

Plates which have been accidentally fogged may be restored by soaking them in a solution of potassium bromide and chromic acid. Make a solution of 15 grains of chromic acid, 30 grains of bromide of potassium, and 5 oz. of water. Soak the plates in this solution for five minutes, wash thoroughly and set up to dry. Of course the process must be conducted in the dark room, the plates dried in the dark, and in a place where there is no dust.

### EXPOSURE WITH A PINHOLE

THE easiest way to explain matters will be to consider an imaginary case. Suppose that with a certain light, subject, and plate an exposure of 1-20 second with f. 16 is found satisfactory, and that it is required to make a second exposure (same speed of plate, light, and subject) with a pinhole. To estimate an equivalent exposure we now need know only the diameter of the pinhole and its distance from the plate. Let us suppose the hole to be 1-40 of an inch used 12 inches from the plate. Now, 1-40 inch 12 inches away gives us the f. value of the pinhole of f. 12 x 40 or f. 480. The equivalent exposures of the lens (f. 16) and the pinhole (f. 480) are in the proportion of the square of 16 to the square of 480, or as 16 x 16 to 480 x 480. We must therefore multiply 1-20 by 480 x 480, and divide the result by 16 x 16; in other words, simplify the fraction

$$\frac{1 \times 480 \times 480}{20 \times 16 \times 16}$$ viz., 45 seconds.

One more example will make matters quite clear. The lens exposure is 1-100 sec. with f. 8. Required the equivalent exposure with a 1-50 inch hole at 6 inches from the plate.

Multiply 1-100 sec. by 300 x 300, and divide by 8 x 8, or simplify the fraction

$$\frac{1 \times 300 \times 300}{100 \times 8 \times 8}$$ say, 14 sec. (approx.)

### PRINT STICKING TO A NEGATIVE

IF an unvarnished negative is printed in damp weather, or the paper used is not quite dry, or the negative is not quite dry, or if the printing frame gets rain spotted, or if the operator has been blowing on the paper to get it to rise up from the negative, and a tiny drop of saliva has got on the film, the print may stick to the gelatine film. If this is allowed to remain, not only is the print spoiled, but the negative will very probably be badly stained as well, from the silver of the paper affecting the gelatine. Should this accident happen, the best thing to do is to tear away the paper as carefully as possible; then put the plate in a clean hypo fixing bath until the paper gets quite soft, when it may be removed by rubbing with the finger tip. The plate should be returned to the fixing bath for another half hour and then well washed.

### TEMPERATURE NOTES

| | Deg. Fahr. |
|---|---|
| Negatives, Developing, Fixing, Washing | 60– 65 |
| Bromide Prints, Developing, Fixing, Washing | 60– 65 |
| P. O. P. Toning, Fixing, Washing | 60– 65 |
| Gum-bichromate. Sensitizing | 60– 70 |
| Gum-bichromate. Developing | 60–100 |
| Ozotype. Sensitizing, Pigmenting | 60– 70 |
| Ozotype. Developing | 110–120 |
| Gum-ozotype. Developing | 60– 70 |
| Chromatype. Sensitizing and Drying | 55– 60 |
| Chromatype. First Washing | 75– 80 |
| Chromatype. Developing. Black or red | 95–120 |
| Chromatype. Developing. Brown | 100–125 |
| Chromatype. Developing. Green | 105–130 |
| Chromatype. Developing. Sepia | 110–140 |
| Artigue. Sensitizing | 55– 65 |
| Artigue. Developing | 70– 80 |
| Carbon Process. Sensitizing, Transferring | 50– 60 |
| Carbon Process. Developing (underexposure) | 95 |
| Carbon Process. Developing (correct exposure) | 105–115 |
| Carbon Process. Developing (overexposure) | 120–160 |
| Rough Transfer (10 seconds 105–115 then 65) | |
| Double Transfer. Final Support 85, 5 minutes, then 65 | |
| Auto-pastel. Sensitizing | 60– 65 |
| Auto-pastel. Developing | 120–150 |
| Carbon Stripping Films. Sensitizing | 60– 65 |
| Carbon Stripping Films. Developing | 90–110 |
| Carbon Stripping Films. Transferring | 65– 75 |
| Platinotype "Cold Bath." Developing normal tones | 70– 80 |
| Platinotype "Cold Bath." Developing warm tones | 90–100 |
| Platinotype "Hot Bath." Developing overexposure | 100–120 |
| Platinotype "Hot Bath." Developing normal exposure | 120–130 |
| Platinotype "Hot Bath." Developing underexposure | 150–180 |

### DEVELOPING IN COLD WEATHER

SUCCESSFUL developing in a cold dark room in winter is difficult. The image is hard and the half-tones are often wanting, even if the exposure and the composition of the baths are correct. As the amateur's dark room is generally in an out-of-the-way corner of the house, where heating and ventilation are neglected, ill success is a foregone result. For successful developing the air and the baths must have a temperature of at least 60 degrees.

### REDUCING P. O. P.

IT often occurs that P. O. P. prints are carried much too far and are therefore too dark. If this is the case, they may be reduced quite satisfactorily in the following solution :—

| | |
|---|---|
| Uranium Nitrate | 40 grains |
| Hypo | 1 ounce |
| Water | 4 ounces |

WILLIAM H. HUSE and William E. Burbank, the judges appointed by Secretary Fred T. Irwin of the Manchester Camera Club, to determine the prize winners in the annual photographic competition of the New England Photographic Exchange, has made the following awards:

*Landscape.* — First prize, "The Pasture," by Mr. Bond of the Brockton Camera Club; second prize, "Griffin's Lane," George I. Ayer, Manchester Camera Club.

*Marine.* — First prize, "Steamer Empress arriving at Baker's Island," F. C. Wainwright, Dartmouth Camera Club of Lawrence, Mass.; second prize, "On the Maine Coast," J. E. Currier, Manchester Camera Club.

*Genre.* — First prize, "The Gleaner," C. W. Merrill, Providence Camera Club; second prize, "Preparing for a Romp," Henry Popp, Albany, N. Y., Camera Club.

*Winter Scenes.* — First prize, "A March Morning in the Adirondacks," M. H. Rochester, Albany Camera Club.

*Still Life.* — First prize, "Flower Study," A. T. Johnson, Manchester Camera Club; second prize, "Greys," L. A. Whittier, Manchester Camera Club.

*Interiors.* — First prize, "A Colonial Interior," Will C. Eddy, Mystic Camera Club, Medford, Mass.; second prize, "Chapel of the Convent of the Sacred Heart," Augustus Pruyn, Albany Camera Club.

The New England Photographic Exchange is composed of the Manchester Camera Club, the Providence Camera Club, the Photographic Society of New Haven, Conn.; the New Britain, Conn., Camera Club, the Albany, N. Y., Camera Club, the Dartmouth Camera Club of Lawrence, Mass., and the Brockton, Mass., Camera Club. These clubs exchange slides and views, and give exhibitions of the work done by their own and each other's members. The Manchester Club has charge of the exchange work, the duties devolving upon the secretary.

Each year the several clubs send to the secretary of the club in charge of the exchange what they consider their best work in the several classes. These specimens of work constitute a competitive field. Prizes are awarded in each class by judges chosen by the exchange secretary.

IN behalf of the C. P. Goerz Optical Works we are pleased to announce that the Goerz Catalogue Cover Competition, which closed recently, was a complete success, and has been fruitful in interesting results.

The first prize picture by Mr. Edward J. Steichen is a wonderfully beautiful and interesting composition, which will be published in poster form simultaneously with its appearance on the cover of the next general catalogue of the Goerz lenses.

The pictures sent in were judged by Messrs. Alphonse Mucha, Alfred Stieglitz, and Joseph T. Keiley. Upon their recommendation the following awards were made: —

First prize: Mr. Edward J. Steichen, New York.

Second prize: Mrs. Laura Adams Armer, California.

Third prize: Mrs. Annie Brigham, California.

The judges further decided that the remaining competitors had not adequately considered the conditions of paragraph 11 of the rules governing the competition.

The balance of the prizes was therefore awarded by the C. P. Goerz Optical Works with the following results: —

Fourth prize: Miss Katherine Bingham, Vermont.

Fifth prize: Mr. H. H. Pierce, Massachusetts.

Sixth prize: Mr. F. E. Bronson, New York.

Seventh prize: Mr. A. W. Engell, Illinois.

Eighth prize: Mr. R. H. Cunan, New York.

We have received from K. Schwier, Weimar, the "Deutscher Photographen Kalendar, 1906," in two volumes, filled with formulas, recipes, descriptions of processes, etc. The condensed almanac in the front makes this volume a handy encyclopædia as well as a photographic reference book. There are 535 formulas, including the latest achievements in color work. Bound in dark leather, the volume makes an attractive pocket volume of absolutely indispensable information. Orders will be received by us and forwarded to Germany. Single volumes, M. 2; two volumes bound together, M. 3.

The Bowker Fertilizer Company, 43 Chatham St., Boston, announces that its annual contest for 1905 was a great success. The prizes awarded for the best photographs of crops grown on Bowker fertilizers were as follows: —

First prize: $15.00, Theodore Eitel, Louisville, Ky.

Second prize: $10.00, Wm. F. Bond, Avon, Mass.

### MR. CURTIS'S INDIAN PICTURES

Mr. E. S. Curtis, whose remarkable series of photographs, illustrating the life of the American Indian, has created such wide-spread interest, will contribute a series of articles on his favorite subject in the May and June numbers of *Scribner's Monthly Magazine.* As these are to be profusely illustrated with half-tone reproductions of original photographs taken by Mr. Curtis, the general public will gain fresh and accurate information regarding a topic sure to be interesting. The collection of Indian subjects, exhibited recently at the Arts Club, New York City, and numbering several hundred different prints, will be shown in the spacious art gallery of the St. Botolph Club, Boston, Mass., April 1 next, and will, doubtless, create as much of an artistic sensation as it did in New York City and elsewhere.

Mr. Curtis has made the study of the North American Indian his life work. He has lived with various tribes, journeyed with them, participated in some of their sports and ceremonies, and given their habits and mode of life his most careful and sympathetic attention, so that he feels he has acquired a thorough knowledge of the "noble red man." He has thus availed himself of exceptional opportunities to perpetuate, by means of the unerring eye of the camera, scenes of a life which, to the living and many generations to follow, will be of inestimable historic value.

Fully appreciating the strong quality of Mr. Curtis' art, we shall reproduce in the next issue of the Photo Era several representative prints by this fascinating and sympathetic pictorialist.

The Postal Photographic Club of Washington recently met and reelected its principal officers, as follows: president, Chas. E. Fairman; secretary and treasurer, G. A. Brandt. The new circulating album of this club is one of the best yet sent out, and the membership of the club (35) includes many well-known photographic workers.

We are pleased to note that the Champion Paper Company of Hamilton, Ohio, has just started a publication in the interests of the Champion No. 1, Pure White Book Paper. This enterprising concern has found a little niche in the publishing field that no one can fill so well as themselves, and they have decided to fill it with their publication *Pure White. Pure White* is a most interesting magazine for the printer and publisher, keeping him in touch with the latest developments in paper making, the newest ideas in getting finished results from the use of paper, printing, and photo-engravings — but particularly paper.

When taking a child or group there is usually one favored moment *during* which you should make the exposure.

You are waiting for that moment, and instinctively grasp the bulb. With a Low Shutter you get the *full value* of the moment, while with others you get about one half of the exposure when you want it, and the balance afterward. In other words, a Low Shutter operates when the bulb is pressed, and is quick as thought itself, and other shutters operate only after a large part of the pressure has been applied.

DOUBTLESS many of our readers are looking for bargains in cameras, photographic accessories, stereopticons or lantern slides, and we suggest that Williams, Brown & Earle, 918 Chestnut Street, Philadelphia, Pa., have purchased the entire stock of Queen & Company, and are selling it at discounts of fifty per cent to seventy-five per cent. A postal will bring their Clearance List to any address.

WITH sincere regret we record the death of Mr. O. H. Peck, of the New York Lens Co., on Monday, January 8. On the first of January Mr. Peck was knocked down and run over by a large automobile on Fifth Avenue, and sustained a fracture of the skull and other serious injuries which proved fatal. A host of friends in Minneapolis, where he was formerly in business, as well as many more in New York, will mourn the loss of this genial man. We extend condolences to his bereaved wife, his son and daughter.

A NOVEL feature at the approaching meeting of the Professional Photographers' Society of New York will be an exhibition of what may be termed "bread-and-butter" pictures. Each member will be asked to exhibit what he regards the best picture made in the course of regular work during the preceding year. This idea, while entirely new, is an excellent one, and should prove interesting, instructive, and of great mutual benefit to the members of the Society.

MR. EDWIN WILSON, of Savannah, Ga., who was elected Secretary of the P. A. of A. at the Boston Convention, has found it necessary to resign, owing to the fact that his time is completely occupied with his photographic studios and the automobile business, which he has recently entered. Mr. Chas. W. Hearn of Boston, President of the Association, has appointed Frank W. Medlar, of Spencer, Iowa, to fill the vacancy. Mr. Medlar has been a stanch supporter of the National Association for many years, he is popular with everybody, and will fill the position with credit. We wish him all success in his work.

### THE PENNSYLVANIA CONVENTION

IT is just about the right time to say a word to you, brother photographer, on the subject of the Pennsylvania Convention, which meets in the most beautiful city of this or any other country, in May, the loveliest month of the year.

The city of Washington in May is paradisiacal in the glorious sky colors, magnificent landscapes, and the structures of empire which our fathers builded. It is a full rich inspiration to your Art and your patriotism, and while we will make no stereotyped assurance that the convention will transcend all others, we will say that no pains will be spared to make this an ideal convention.

We will engage the very best and most successful photographers in this country as lecturers, who will tell you how they achieved fame and success.

The show of fine pictures will be the best this country affords. If you care for prizes, there will be some fine ones to work for. The social features will be many.

Will you starve your own artist life by staying away from all these sights and sounds? Don't do yourself or your fellows that injustice. Come out into the wide field of our fellowship.

THE EXECUTIVE BOARD OF THE
PENNSYLVANIA CONVENTION.
A. T. PROCTOR, *Pres.*

### N. E. PHOTOGRAPHERS' ASSOCIATION

AT a meeting of the full Executive Board of the Photographers' Association of New England at the Hotel Brunswick, Boston, on January 18th, it was voted to hold the next annual convention at the Mechanics Building in this city, on August 21–23, inclusively. It was also voted to offer prizes for pictures, the prizes to be awarded by a popular vote of the members present at the convention —each member to receive a numbered coupon, which later on could be used as a ballot to record the choice of the best picture. The experiment is a novel one, and its success will be watched with interest. The officers of the association are, president, Chris Johnstone of Hartford; first vice-president, J. Bushong of Worcester; treasurer, S. M. Holman of Attleboro; secretary, Jas. Evanoff of Boston.

THE Wollensak Optical Co. purchased the factory and good will of the Rochester Lens Co. on January 6, and will conduct the business under its own firm name. This purchase represents a distinct addition to the output of the Wollensak Optical Co., whose shutters and lenses have maintained a high standard and a widespread reputation second to none.

THE Portfolio Club has recently been organized in Worcester, Mass., with the following officers: Lee Russell, 11 Green Lane, Director; H. R. Cummings, 314 Main Street, Secretary-Treasurer. There are fourteen charter members, and the total membership is limited to sixteen. A monthly portfolio of prints is circulated, and each print is criticized by the members. Monthly meetings are held at which a special subject is discussed by one of the members who has been specially appointed in advance. The members, benefited by the instruction thus obtained, are doing fine work, and it seems to us that the idea is excellent — one which ought to be taken up by photographers for mutual benefit in every community.

THE Fifth Annual Exhibition of the Wyoming Valley Camera Club of Wilkes-Barre, Penn., will be held at 18 West Market St., from March 12 to 17, 1906. It will be open to all who are endeavoring to promote the advancement of pictorial photography. There will be no awards.

All negatives from which pictures are submitted must be the work of the exhibitor. Prints will be accepted either framed or unframed. The title of each picture and the exhibitor's name and address must be plainly written on labels provided by the club, and attached to the back of each picture.

Pictures which are accepted cannot be removed before the close of the Exhibition. The prints to be submitted must be in the hands of the Committee by 8 P.M., Feb. 28, 1906.

R. L. WADHAMS, *Secretary.*

MESSRS. G. GENNERT of New York and Chicago inform us that their quarters in Chicago, although occupied less than a year, have proved inadequate for the increasing business, and they have been obliged to secure larger accommodations at 53 and 55 East Lake St. Mr. G. C. Gennert will continue to manage the Chicago branch in the able and genial manner which has won him so many friends, while Mr. Maurice G. Gennert, who has recently returned from Europe, bringing many photographic novelties, will continue in control of the New York branch.

SINCE the introduction of the Aristo Gold Post Card, by the American Aristotype Company of Jamestown, N. Y., they have been flooded with requests for a paper, in regular sizes, of the same quality. To meet this demand the Aristo Carbon Sepia paper, which is a practical parallel to the Aristo Gold Post Card stock, has just been placed upon the market. No photographer can afford to omit giving this meritorious product a trial.

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## PHOTOGRAPHERS' ASSOCIATION OF AMERICA

NIAGARA FALLS, N. Y., *Jan.* 18, 1906.

The Executive Committee of the Photographers' Association of America met at the Prospect House for the purpose of making arrangements for the Twenty-sixth Annual Convention.

All officers were present. Charles Wesley Hearn, President; C. J. Van Deventer, First Vice-president; C. L. Lewis, Second Vice-president; F. R. Barrows, Treasurer; Frank W. Medlar, Secretary.

The report of the Ex-secretary was as follows: —

| | |
|---|---|
| Received on Outstanding Account 1904 | $ 219.35 |
| Received for Floor Space 1905 | 2,775.00 |
| Received for Desk Space 1905 | 250.00 |
| Received for Advertising Space 1905 | 895.00 |
| Received for Merchandise Sold | 5.00 |
| Received for Balance Ladies' Entertainment Fund | 40.00 |
| Paid to F. R. Barrows, Treasurer, in Full | $4,184.35 |
| Outstanding Accounts | $24.50 |

*Treasurer's Report*

| | |
|---|---|
| Cash on Hand Jan. 1, 1905 | $5,026.20 |
| Received from Secretary | 4,184.35 |
| Received from Membership and Dues | 3,128.00 |
| Entertainment Loan Returned | 300.00 |
| Received — Hotel Lenox | 100.00 |
| Sale of Ladies' Pins | 37.25 |
| Total | $12,775.80 |
| Paid out on Vouchers drawn by President and Secretary, Nos. 479 to 582 Inc. | 7,957.26 |
| Balance on Hand Jan. 1, 1906 | $4,818.54 |

COMMITTEES APPOINTED

E. E. Poole, St. Catherines, Ont., Committeeman for Canadian interests.

*Hotels and Accommodations.* — C. L. Lewis, Frank W. Medlar.

*Entertainment.* — E. F. Olmstead, Chairman, Niagara Falls, N. Y.; C. L. Lewis, C. J. Van Deventer, J. Geo. Nussbaumer.

*Decoration and Hall.* — C. J. Van Deventer, C. L. Lewis, Frank W. Medlar.

*Ladies' Reception Committee.* — In charge of Mrs. E. F. Olmstead, of Niagara Falls.

*Membership Buttons.* — F. R. Barrows, C. J. Van Deventer.

*Press Committee.* — C. J. Van Deventer, C. L. Lewis, Frank W. Medlar.

*Transportation.* — C. L. Lewis, F. R. Barrows, E. E. Poole.

*Printing and Advertising.* — Charles Wesley Hearn, F. R. Barrows, C. L. Lewis.

*Association Review.* — C. L. Lewis. C. J. Van Deventer, Charles Wesley Hearn.

*Information.* — F. R. Barrows, F. W. Medlar.

*Local Press.* — T. Smith, Niagara Falls, N. Y.

The President appointed C. J. Van Deventer and C. L. Lewis to audit the accounts of the ex-Secretary and Treasurer, which were found to be correct, and were approved.

It was decided that the Convention be held on August 7, 8, 9, 10, in the Cataract-International Hotel, and it will be known as the Niagara Falls Convention of the Photographers' Association of America.

Other important matters decided upon were as follows: —

That the meetings, exhibits, and official headquarters be in the Cataract section of the hotel.

That the courtesies of Room A be extended to the New York State Association of Professional Photographers.

That prizes be eliminated from the convention.

That twenty-five pictures be selected as a salon exhibit, and that such pictures be officially recognized by the Association.

That the salon exhibit be recommended as the illustrations for the *Association Review* for 1907, thereby enabling every member to possess copies for future reference and study.

That $200.00 be appropriated by the Association toward the Entertainment Fund.

That a printed ballot slip be prepared to be used in balloting in the election of officers, and that no other than this official ballot be recognized.

FRANK W. MEDLAR, *Secretary.*

Spencer, Iowa.

One of the most popular brands of paper with the professional photographer to-day in this country is the Di Nunzio Sepia Platinum, of cold development fame. The manufacturer of this paper is Mr. Jos. Di Nunzio of Boston, who has just set sail for Europe, with a view to introducing his paper there. The paper has been thoroughly tested here now with six years of general use among the trade and the profession at large, and has been very successful. The capacity of the Boston plant has been taxed to the utmost, to supply the local consumption. It is probable that a large addition will be made to it, to meet the demand of European consumers, who are sure to be many when they learn the fine qualities which this wonderful *sepia paper* possesses. We bespeak for Mr. Di Nunzio a cordial reception at the hands of our European brethren.

An exhibition of pictorial photography was held at the Little Galleries of the Photo Secession, 291 Fifth Avenue, New York, from January 10 to 24, which was devoted entirely to prints from representative French workers, such as Puyo, Demachy, Le Bégue, Grimprel, Laguarde, and others. Some very interesting and exceptionally fine examples of gum printing were shown, which excellently typified the modern tendency among French pictorialists, and proved that there are only a few workers in this country, notably Eduard Steichen, who can equal these men in handling this beautiful medium of artistic expression. We were impressed with the delicious richness of color, remarkable smoothness of texture, wonderful depth of the shadows, and pleasing brilliancy of the high lights, which proved these men to be past masters in the manipulation of this process and artists of great creative genius. Many people preferred this exhibit to that of the Secessionists, which recently closed and, while it may have appeared more finished to the casual observer, yet it did not possess the strength and character of its predecessor, and therefore failed to be as fully convincing.

In the Photo Secession galleries, 291 Fifth Avenue, New York, from January 26 to February 2, was shown a series of photographs by Herbert G. French, illustrating portions of Tennyson's "Idylls of the King." The purpose of the series, as set forth in the catalogue, was to suggest the varied human emotions portrayed in Tennyson's version of the Arthurian legend. The list comprised forty-five photographs in all, and again demonstrated — if any demonstration was necessary — the ability of Mr. Stieglitz and his associates to deliver the goods.

The Illinois College of Photography recently enrolled fifteen new students who came to the college from China, Wales, Canada, Michigan, Utah, Ohio, Illinois, New Hampshire, Pennsylvania, Tennessee, and Nebraska. This is an indication of the widespread fame of the Illinois College.

Looking Both Ways
January Features
Our Fourth Annual Photographic Contest
By Thomas Harrison Cummings
Photographing Interiors
By Phil. M. Riley
A PHOTO-ERA Tour in Europe
By Wilfred A. French, Ph. D.
Calculating Enlargements without Tables
By William Perry Hopkins
March Features
Progress of American Profes'l Photography
By Thomas Harrison Cummings
A PHOTO-ERA Tour in Europe
By Wilfred A. French, Ph. D.
Portraiture at Home
By Phil. M. Riley
Ceramic Photographs
By H. C. ter Meer, E. E.

PHOTO ERA

# Special Subscription Offer

PHOTO ERA

¶ On account of the reduction of the subscription price of PHOTO ERA, and our desire to push the subscription list to 50,000 within the next few months, we will, for a limited time, make the following reductions on combination subscriptions:

PHOTO ERA with THE PRACTICAL PHOTOGRAPHER, $3.50.
PHOTO ERA with ART IN PHOTOGRAPHY, $10.50.
ART IN PHOTOGRAPHY with THE PRACTICAL PHOTOGRAPHER, $11.50.
PHOTO ERA with ART IN PHOTOGRAPHY and THE PRACTICAL PHOTOGRAPHER, $12.50.

¶ We especially commend this last offer to Camera Clubs, because each subscription carries with it the privilege of asking for three PHOTO ERA EXHIBITS during the year.

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FOR $2.50 we will send PHOTO ERA for a year together with either of the following—

(1) Emery's "How to enjoy Pictures," price $1.50, or
(2) Dow's "Composition," price $1.50, or
(3) Poore's "Pictorial Composition," price $1.50, or
(4) One Portfolio PHOTO ERA Masterpieces in Art.

¶ Any one of the above articles will be sent with THE PRACTICAL PHOTOGRAPHER for a year - - - - - - - - - FOR $3.00

¶ We will send a copy of "La Photographie du Nu" with the PHOTO ERA for a year for $3.00, or we will substitute THE PRACTICAL PHOTOGRAPHER for $3.50.

¶ We will send THE NORMAL PHOTOMETER, an instrument for finding the absolutely correct exposure, with PHOTO ERA for a year, for $5.50, or we will substitute THE PRACTICAL PHOTOGRAPHER for $6.00.

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¶ With every subscription to THE PRACTICAL PHOTOGRAPHER enclosing $2.50, whether new or a renewal, we will give you the choice of the following offers:—

(1) A PHOTO ERA enlargement from your negative, any size up to 11 x 14, or
(2) A portfolio containing twenty-four PHOTO ERA Artist Mounts, about 9 x 12 in size, containing a selection of papers of various shades and textures, suitable for every variety of photographic print.

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**Photo Era Publishing Company**

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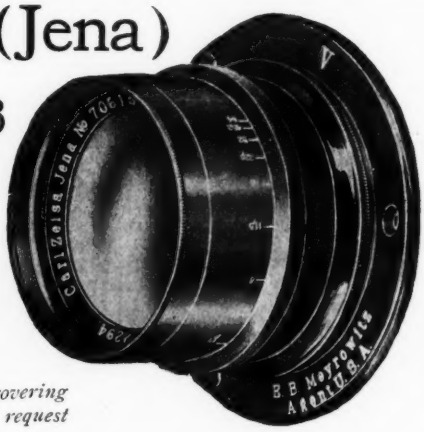
# Carl ZEISS (Jena)

## "TESSAR" f:6.3

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**PACKARD SILENT SHUTTERS**

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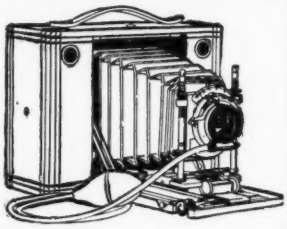

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| **Black Bromide Enlargements from Negatives** | **Unmounted** | | .40 | .50 | .60 | .70 | .80 | .90 | 1.10 |
| | **Flexible Mounts** | | .50 | .60 | .70 | .80 | .90 | 1.00 | 1.25 |
| | **Double Mounted** | | .65 | .75 | .85 | .95 | 1.15 | 1.25 | 1.50 |
| **Royal Brown Sepia Enlargements from Negatives** | **Flexible Mounts** | | .60 | .80 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 |
| | **Royal Brown Mounts** | | .75 | .90 | 1.40 | 1.65 | 2.25 | 2.75 | 3.25 |
| | **Stretchers** | | 1.00 | 1.25 | 1.75 | 2.25 | 2.75 | 3.25 | 3.75 |
| **Enlarged Negatives from Glass Positives** | | .80 | .90 | 1.00 | 1.50 | 2.50 | 4.00 | 4.50 | 5.00 |
| **Contact Positives on Glass** | | .25 | .35 | .50 | | | | | |

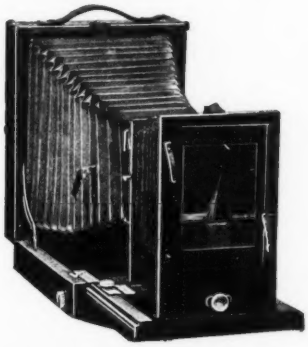
Enlargements made from prints, $0.25 extra for making negatives.
Express charges both ways to be paid by purchaser.
Negatives should be securely packed in excelsior in a large box, and express prepaid.
We accept no responsibility for safety of negatives, but will pack properly for return.
On large portraits a special price will be charged for necessary hand work, varying from $2.00 to $5.00 more than prices given.

**Photo Era Publishing Company,** **383 Boylston Street Boston, Massachusetts**

# Eastman Kodak Company

ROCHESTER, N. Y., *The Kodak City.*

## THE KODAK ENLARGING CAMERA.



## PRICE, $15.00.

### HOW TO USE IT.

The operation of the camera is very simple, and briefly is as follows: Load the paper-holder in the dark-room. Place negative in position and locate the camera so that unobstructed light from a window will fall evenly on negative; open shutter; focus by scale or on ground glass; close shutter and insert paper-holder; draw dark slide. Expose by opening shutter for required number of seconds. Re-insert dark slide, remove holder to dark-room and develop.

With the camera comes a very explicit direction book.

With this camera, 6½ x 8½ enlargements may be made from 4 x 5 or 3¼ x 4¼ negatives. Frequently however, one desires to use only a portion of a negative or to work from smaller negatives. To provide for this we furnish inside Kits (extra) for 5 x 7 and 4 x 5 paper, although it is by no means a bad method to use the full 6½ x 8½ paper for smaller pictures, as the white margins are often highly desirable.

## THE DON'T KNOW WHAT TO DO DAYS.

After any season of activity comes a time one is tired of the ordinary vocations and amusements and a diversion of almost any sort is welcome. You have undoubtedly printed from and catalogued your summer's negatives ; it's too cold or too wet to make outings pleasant, and Old What Shall I Do comes stalking in. He is a weary old bore and hard to get rid of.

Here's a suggestion :

Many of your small negatives would yield beautiful enlargements, but enlarging has always seemed to you a mystifying and intricate process. With the Kodak Enlarging Camera the process is as simple as the snapping the original film, with the added advantage that the work may be performed at any time with either daylight or artificial illumination, and all or any portion of the small negative may be used.

The Kodak Enlarging Camera is in effect simply a long box with a dividing partition in the center holding the lens; at the front end of the box is placed the small negative, at the other end a holder containing a sheet of Bromide paper.

The light passes through the negative—through the lens in the center of the camera, the light rays coming to a focus upon the sheet of Bromide paper at the rear of the box—a few seconds exposure—develop the sheet of Bromide paper in almost the same manner as a sheet of Velox paper and there you have the whole mysterious (?) process.

With the Kodak Enlarging Camera all complications have been avoided, even the focusing being practically automatic and the whole operation so simple as to make successful enlarging an easy task for the beginner in Kodakery.

The Kodak Enlarging Camera is designed for amateur home use and

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**ROCHESTER, N. Y., *The Kodak City.***

has been made light and compact, easily carried in the hand and occupying, when closed, no more space than an ordinary view camera of the same capacity.

In addition to its advantages as an enlarging camera, the front bellows may be removed, an extra lens board snapped into place and Presto! you have a fine Portrait Camera.

A Special Portrait Lens, working at a speed of *f.* 8, amply fast for home portraiture, is supplied at a nominal cost, and in its entirety the Kodak Enlarging Camera will prove a valuable and welcome adjunct to your Kodak and fill in with profit and entertainment the Don't Know What to do Days.

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## AS A PORTRAIT CAMERA.

The No. 1 Kodak Enlarging Camera may, by the addition of a lens board and lens, be used most successfully as a portrait camera. The negative carrier (and bellows attached to same) and the lens board are instantly detachable. All that is then required is to slip the extra lens board and lens into position.

## PRICE LIST.

| | |
|---|---|
| No. 1 Kodak Enlarging Camera, equipped for making enlargements from 4 x 5 glass negatives or from film negatives of any size 4 x 5½ inches, or smaller, . . . . | $15.00 |
| 6½ x 8½ Inside Kits, 5 x 7 opening, | .35 |
| Do., 4 x 5 opening, . . . . . | .35 |
| Glass Negative Holders, 3¼ x 4¼, | .50 |
| Do., 3½ x 3½, . . . . . | .50 |
| Do., 3¼ x 3½, . . . . . | .50 |
| Special Portrait Lens, 8½″ focus, speed *f.* 8 for bust work, speed *f.* 11.3 when fully covering plate, . | 7.50 |
| Extra Lens Board, . . . . . | .75 |

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